

**IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF ILLINOIS
WESTERN DIVISION**

THE UNITED STATES OF AMERICA and)	
)	
THE STATE OF ILLINOIS)	
)	
Plaintiffs,)	
)	
v.)	Civil Action No. 3:15cv50250
)	
THE CITY OF ROCKFORD, ILLINOIS,)	
)	
)	
Defendant.)	
_____)	

**CONSENT DECREE
APPENDIX D**



RIGHT-OF-WAY & DRAINAGEWAY INSPECTION & MAINTENANCE

STANDARD OPERATING PROCEDURES



June 2015

1.0 General

It is the responsibility of the City of Rockford Public Works Department to ensure the proper operation and maintenance of the MS4, including city-owned and timely enforcement of privately-owned stormwater structures. The City shall inspect, maintain, clean, and repair all city owned components of the MS4 including storm inlets, pipes, culverts, manholes, detention ponds, drainageways and all other stormwater structures to the maximum extent practicable. The City shall inspect, track and take necessary action to require that privately-owned stormwater structures are adequately maintained.

2.0 Personnel

2.1 Inspections

1. Storm Inlets/Manholes/Pipes – Street Maintenance Workers, Stormwater Staff, Engineering Project Managers, Engineering Technicians
2. Creek/Drainageway inspections – The Stormwater Staff of the Engineering Division and the Street Supervisors

2.2 Maintenance

Street Supervisors, Equipment Operators, Maintenance Workers, External Contractors

3.0 Equipment

3.1 Inspection

1. Clip Board with pen or pencil
2. Work boots or appropriate foot wear
3. Tape measure
4. Camera
5. Safety vest
6. Hard hats when around heavy equipment

3.2 Maintenance

1. Jet/Vac sewer cleaning vehicles (i.e. Vactor)
2. Light duty pickup trucks equipped with traffic control “arrow-board”
3. Backhoe
4. Heavy duty pickup with utility box
5. Skid-steer loader with bucket and breaker attachment
6. Heavy duty flatbed truck with cement mixer
7. Lawn mower(s)
8. Dump trucks

4.0 Material Disposal

All waste material generated by the inlet cleaning operation shall be emptied from the jet/vac vehicles at an approved dumping station and immediately loaded onto dump trucks and deposited in a licensed landfill facility. All sediment and debris removed from all cleaning operations shall be deposited in a licensed landfill facility.

5.0 Storm Inlets/Manholes/Pipes

5.1 Inspection

The City has over 29,000 known storm structures within its right-of-way and easements. Inspections are completed under two different processes.

1. Reactive:

As citizens or city staff notify the Street Division of blocked inlets or pipes, sunken/broken structures or broken pipes. These inspections are completed by the Street Supervisors or the Stormwater Staff and tracked through the Infor (Hansen) Service Request System. Notification can be in the form of phone calls, emails, website requests or Hansen requests. A work order is generated by the Street Division and scheduled for inspection based on severity. Clogged inlets causing flooding are inspected and cleaned same day or within 24 hrs. Sunken structures are inspected immediately and barricade placed same day or within 24 hrs. Repairs are completed as part of the Yearly Inlet Package. All other requests are inspected within 1 week.

2. Proactive:

As the Engineering Division performs street inspections for the Annual Capital Improvement Program projects or when the State performs resurfacing or reconstruction on State Highways within the City's jurisdiction. These inspections are completed by Engineering Project Managers or Engineering Technicians.

5.2 Maintenance

1. Inlet & Pipe Cleaning – Storm structure cleaning shall begin following the winter season with the initial focus on known problem areas that are susceptible to sediment and debris accumulation or flooding. List of known problem areas are kept at the Street Division and reviewed annually to determine if areas should be added or deleted from the list. Changes to the list will be summarized each year in the annual report. Subsequent inlet cleaning shall be based on the citizen requests/complaints and as needed based on the reactive and proactive inspections of the Street Supervisors, Stormwater Staff and Engineering Division. Frequency associated with known problem areas is dependent on weather conditions (i.e. A heavy winter as in the 2013/2014 winter season causes more debris to accumulate in the gutters and inlets requiring more frequent inlet cleaning and street sweeping.). Inlet cleaning shall also be completed as part of City road construction projects, as needed.

2. Inlet & Pipe Repairs – Storm structures, mains & laterals found to be substandard or failing shall be rebuilt or repaired in a timely manner dependent on weather conditions, with the largest percentage of the repairs being performed by an external contractor. Internal staffing will address moderate repairs as scheduling will allow. Inlets found to be in disrepair during the inspections as part of the Capital Improvement Program shall be repaired as part of the roadway project.

5.3 Documentation

Record of all storm structures / storm pipes inspected to include date, type of structure, size of each pipe, exact location (intersection, address, etc.), physical condition at time of inspection, sand/silt or debris present and recommended resolution to any of the above listed defects. If location, type and size of inlet vary from the GIS map system then the inlet data shall be given to the Facilities Management Section so the GIS maps can be updated.

Record of all structures/pipes cleaned to include date, type of structure, location (address or intersection), type and approximate amount of debris deducted, and number of feet of laterals or mains cleaned. Documentation shall be kept by the Street Division for the entire year and a summary of structures cleaned and the amount of material deducted shall be given to the Stormwater Section by the end of February of each for inclusion in the Annual Report.

Record of all structures repaired/replaced to include date, type of structure, address or intersection, nature of repair and cost of repair. For structures repaired by the Street Division the documentation shall be kept by the Street Division for the entire year and a summary of the number of inlets repaired shall be given to the Stormwater Section by end of February each year to include in the Annual Report. For inlets repaired as part of the Capital Improvement Program the documentation shall be kept by the project managers for the entire year and provide a summary of the number of structures repaired/replaced to the Stormwater Section by the end of February each year for inclusion in the Annual Report.

6.0 **Drainageways**

The City does not own or maintain all of these drainageways and creeks. Maintenance of private drainage systems shall be the responsibility of the property owner(s). The following is a list of drainageways within the City:

- Southeast Drainage Ditch/Buckbee Creek (Paved)
- Northwest Drainage Ditch (Paved)
- Airport East Watershed Creek
- Kent Creek
- Keith Creek
- Madigan Creek
- Manning Creek
- Fuller Creek
- Spring Creek
- Forest Hills Watershed Creek

6.1 Inspection

The City inspects all publicly and privately maintained drainageways and creeks. The City continues to assess the number of miles of paved and unpaved drainageways and creeks within its jurisdiction. As this is evaluated revisions to the total mileage to be inspected will be included in the annual report. If during an off inspection year the City determines there are additional drainageways to be inspected then it shall be documented in the annual report and included in the required inspections for following year.

These inspections are completed by the Stormwater Staff during the even years. This may be completed while performing the outfall inspections for illicit discharge. Inspections are to be performed during low flow conditions. Inspections of non-paved ditches/creeks shall be in accordance with Appendix A, Chapter 4 of Center for Watershed Protection Manual 10 "Unified Stream Assessment - A User's Manual." Inspections for paved ditches shall be in accordance with Appendix A, Chapter 4 and Appendix B, Chapter 9 of Center for Watershed Protection Manual 10 "Unified Stream Assessment - A User's Manual."

Results of the inspections shall be reviewed by the Stormwater Staff and Street Superintendent to determine appropriate maintenance measures.

1. Maintenance will be categorized as:

- i. None – no additional maintenance required
- ii. Minor – No immediate concerns. Minor maintenance (mowing, removal of debris) is needed. Flows are not compromised
- iii. Intermediate – No maintenance is being performed and flows will be compromised if maintenance doesn't commence. Minor erosion noted.
- iv. Major – Flows are compromised. Severe erosion noted. Needs significant maintenance and/or repairs.
- v. Life Safety

6.2 Maintenance

Privately Maintained Ditches/Creeks

Maintenance Notifications

1. For Life Safety concerns

The property owner shall be immediately notified by phone, if possible. Otherwise the notification shall be provided through an in-person visit to the property-owner's residence. In all cases, the property owner shall also receive written notification. The written notification shall specify the required corrective actions, require the property-owner to commence corrective actions within 7 days, provide instructions and a deadline for certifying the completion of those corrective actions, provide a contact for the property-owner to obtain additional information, and identify consequences for noncompliance including follow-up action by the City. If a property-owner fails to certify

completion of the required corrective actions, the City will enter the property 10 days from the date of the notification to make the necessary improvements and the property owner will be responsible for all improvement costs and any associated fees, including attorney fees. Notification shall, also, include contacting the Stormwater Staff prior to commencing work in ensure proper remediation.

2. For Intermediate and Major maintenance needs:
 - a. Owners shall be sent letters detailing needed repairs. This shall be completed within one (1) week of the inspection. Notification shall include the property owner scheduling a meeting with the Stormwater Staff to review remediation measures and to determine if work would require permitting through the IDNR or ACOE.
 - b. If no permit is required property owners shall be given 90 days to complete the maintenance. If additional time is needed the property owner shall request an extension which will be reviewed by the Stormwater Staff. Depending on the extent of the repairs and the history of the property or owner the owner, may be sent through the code enforcement hearing process.
 - c. The city will request property owners to send in the attached maintenance confirmation form upon completion of maintenance items as directed in the letter. Staff will review the maintenance to confirm it has been completed.
 - d. As maintenance is reported as completed on the ditches/creeks in the Intermediate and Major categories it will be indicated on the spreadsheet. Failure of an owner of such a ditch/creek to notify the City within the 90 day timeframe will result in an additional inspection to assess compliance.
3. All other ditch/creek property owners will receive a form letter reminding them of their maintenance responsibilities.
4. All ditch/creek property owners will receive the Ditch/Creek Maintenance Guide included as Appendix C.
5. All ditches/creeks and their maintenance category will the tracked on an Excel spreadsheet.

Publicly Maintained Ditches/Creeks

Life Safety repairs shall be completed as soon as possible, with the understanding that temporary measures shall occur immediately to allow time for the Engineering Division, Street Superintendent and contractor to determine the best course of action for the remediation.

Major repairs to the City-owned paved and un-paved drainage systems/channels will be initiated by the Public Works Engineering Division and shall be prioritized based on the extent of the flow obstruction and erosion concerns. Analysis will begin within 30 days of the inspection and design solutions will begin. Construction timeframes vary due to weather, contractor availability and funding source determination. Temporary stabilization may be required to prevent additional erosion while the project is under design. This work may be completed by the Street Division or by a contractor.

Intermediate and Minor repairs shall be completed either internally by the Street Division or externally by contractors as required. In some cases the Engineering Division may complete the repairs as part of the Capital Improvement Program and shall be consistent with the Stormwater Management Plan.

Maintenance activities occasionally require equipment or personnel to enter a stream, river, channel, wetland or other water body. Cleanup/Repair, Drainage Ditch and Channel Maintenance and Bridge Repairs are among that maintenance work items that can require work in or near a water body. Maintenance equipment should not enter a water body without the required regulatory permits (e.g., Army Corps of Engineers Clean Water Act Section 404 permit, State Illinois Department of Natural Resources). The Floodplain Manager should be contacted to identify the appropriate permits.

In maintenance work near waterbodies, the following environmental stewardship practices should be followed.

- Evaluate alternatives to performing work in the water body.
- Tires should be cleaned before entering a water body.
- Heavy equipment driven into a water body to accomplish work should be clean of petroleum residue.
- Water levels should be below the gearboxes of the equipment in use, or equipment lubricants and fuels should be sealed such that inundation by water would not result in leaks.

Stream channelization or channel deepening as part of cleanup operations is prohibited and avoid placing equipment in-stream, whenever possible. Work is to be performed during low-flow conditions whenever possible and disturbance to existing stream bank vegetation is not to occur "unless absolutely necessary." Removed material must not be placed on the streambanks or in the floodway, and disturbed areas must be seeded and mulched.

6.3 Documentation

Inspection documents completed by consultants (IDNR), ACOE and the Stormwater staff shall be maintained in the Stormwater Share drive and paper reports completed by the ACOE shall be maintained in the appropriate file folders in the file cabinets.

Maintenance work performed or managed by the Engineering Division the Engineering Project Managers shall document all maintenance work performed by its contractors, including date, type of activity, nature of debris removal or bank stabilization performed and the approximate amount of debris removed (tons or cubic yards). Maintenance work completed on privately owned systems will be documented as noted above and shall be tracked on a Time and Materials basis in accordance with the latest edition of the Illinois Department of Transportation Specifications for city staff. Contractor costs shall be tracked based on contract agreement. The Engineering Division shall maintain this documentation for the entire year and provide the data to the Stormwater Section by the end of February each year for inclusion in the Annual Report.

The Street Division shall document all maintenance work performed by the Street Division and its contractors, including date, type of activity, nature of debris removal or bank stabilization performed and the approximate amount of debris removed (tons or cubic yards). The Street Division shall maintain this documentation for the entire year and provide the data to the Stormwater Section by the end of February each year for inclusion in the Annual Report.

The Stormwater Section shall maintain the maintenance documentation in the Stormwater Share Drive.

7.0 Dams & Levees

The City operates and maintains 3 dams (Alpine Dam, Page Park Dam, and Levings Lake Dam) and 1 levee (Kent Creek South Diversion Channel Levee) within its jurisdiction.

7.1 Inspections

Page Park Dam, Alpine Dam and Levings Lake Dam are required to be inspected annually by the City to meet the Illinois Department of Natural Resources (IDNR) compliance. The City retains a consultant to complete the annual inspections along with City staff. A report is completed by the consultant and submitted to the IDNR and the City. Traditionally, the Army Corp of Engineers completes an annual inspection of these dams and supplies a report to the City. For Kent Creek South Diversion Channel the Army Corp of Engineers completes an inspection of the diversion channel and levee and supplies the City with a report. When informed the City staff shall accompany the ACOE staff during the inspections.

7.2 Maintenance

Alpine Dam shall be operated and maintained in accordance with the Alpine Dam Operations and Maintenance Manual kept on file with the Engineering Division. Page Park Dam, Levings Lake Dam and Kent Creek South Diversion Channel shall be operated and maintained in accordance with the its Operation and Maintenance Manual kept on file in the Street Division and the Engineering Division. The City has agreements with the Rockford Park District for various maintenance tasks at Alpine Dam, Page Park Dam and Levings Lake but, ultimately, it's the City's responsibility to ensure the maintenance tasks are completed.

Publicly – Owned Detention Ponds

The City owns several detention ponds within its jurisdiction. The City owned ponds are listed below.

- Lowes Distribution Center
- Elliot Golf Course
- Arden Ct.
- Greater Rockford Industrial Park
- Logistics Parkway
- Harmon Park Ponds/Swales
- New Towne Dr. and Javelin Dr.
- Mulford Village Pond X (west)
- 802 Marchesano Dr. (Fire Station #3)

The City does not own the detention pond in Linden Pointe Subdivision but it is responsible for the maintenance of the pond walls and outlet structure. Rockford Park District owns and provides all other maintenance for this pond.

8.1 Inspection

Inspections are to be performed in accordance with the Detention Pond Inspection Standard Operating Procedures.

8.2 Maintenance

- Ponds shall be mowed a minimum of twice per year.
- Pond mowing and cleaning work shall be scheduled when dry weather is expected.
- Remove sediment & trash from grates, placing it in a truck for disposal.
- Do a visual inspection to make sure any grates, structures, manholes, boxes and pipes are in good working order.
- Provide outlet protection where feasible to minimize the amount of debris that might leave the basin during the cleaning process.
- Remove sediment and debris from the pond bottom.
- Clean structures and pond bottom by vactor truck, sweeping or shoveling when needed.
- All material is to be disposed into a dump truck and deposited in a licensed landfill.

8.3 Documentation

The Street Division shall document when maintenance was completed, type of maintenance completed and the amount of sediment and debris removed. Documentation shall be maintained by the Street Division for the year and by the end of February each year shall provide a summary of the work completed to the Stormwater Section for inclusion in the annual report. If the detention ponds require repairs then the Stormwater Section shall be notified. The Stormwater Staff and the Street Supervisors will determine the appropriate course of action for the

repairs and which Division will be responsible for the repairs. Priority of repairs shall be based on life safety, potential pond failure and funding available.

8.0 Bridges & Box Culverts

9.1 Inspection

The Engineering Division hires a consultant that is certified to completed bridge and box culvert inspections. Per State requirement, this is completed every two years and a report is generated of all bridges and box culverts including inspection results, structural integrity, pictures and recommended maintenance. Prior to and after a major rainstorm event the bridges & box culverts shall be inspected by the Street Supervisors or Stormwater Staff to determine if any debris is obstructing the natural flow through these structures. The amount and type of debris shall be documented.

9.2 Maintenance

Debris removal from the structures shall be completed at the earliest possible time by the Street Division staff or external contractors. Structural maintenance is completed by the Engineering Division through contracted projects. Major repairs shall be prioritized by the Engineering Division based on life safety and funding available.

9.3 Documentation

The Biennial Bridge Inspection Report shall be kept by the Engineering Division. Inspections made before and after major storm events shall be kept by the Stormwater Section. If maintenance is completed by the Street Division then the Street Division shall maintain the documentation and provide a summary of the maintenance to the Stormwater Section by the end of February each year for inclusion in the Annual Report. If maintenance is completed by the Engineering Division then the Project Managers shall maintain the documentation and provide a summary of the maintenance to the Stormwater Section by the end of February each year for inclusion in the Annual Report

9.0 Publicly Owned Trash Racks

9.1 Inspection

Trash racks shall be inspected by the Street Supervisors or Stormwater Staff prior to and following a major rainstorm event (4 inches or greater in 24 hours) to document any debris and floatables obstructing the natural flow through these structures. The City-owned trash rack locations are:

- Alpine Dam (floatable site per NPDES permit)
- Page Park
- Kishwaukee & Sandy Hollow (floatable site per NPDES permit)
- Arden Ct.
- Blackhawk Rd @ Falcon Rd

Section V of the permit requires the City to establish two monitoring points (identified above) for removal of floatables, to collect floatables material at the frequency necessary to prevent flow obstruction but at a minimum of twice each year, to estimate by volume or weight the amount collected, and to report the total each year in the annual report.

Locations not required under the NPDES permit will be inspected a minimum of once per year with debris removal as needed to prevent flow obstruction.

9.2 Maintenance

Prior to the storm event the debris and floatables shall be removed from the trash racks by either the Street Division or Stormwater Staff. The amount and type of debris/floatables removed shall be documented by weight. If debris/floatables accumulated after the storm then the debris/floatables will be removed at the earliest possible time by Street Division staff or external contractors.

9.3 Documentation

Documentation of the inspection, repair or debris/floatable removal from City-owned trash racks shall include date, type and amount (weight) of debris/floatables removed and any repairs needed and/or required or completed. Documentation shall be kept by the Stormwater Section for inclusion in the Annual Report.

10.0 Snow & De-Icing Operations

The Street Division is responsible for all snow and de-icing operations. Preparation for the winter season begins in August and the Street Superintendent shall be responsible for all coordination and documentation of the snow and de-icing operations. Each year the Street Superintendent shall meet with the Rockford Township Street Superintendent to coordinate efforts and improve efficiency of jointly owned streets. The Street and Water Divisions' staff perform the snow and de-icing operations of the City's arterial and collector level streets and perform the de-icing operations for residential streets and city-owned parking lots. A contractor is used to perform the snow removal operations on residential level streets and City owned parking lots. Each year the Street Superintendent shall review which operations should be completed by a Contractor to provide a more efficient or improved level of service. All documentation related to the snow and de-icing operations is retained by the Street Superintendent. Any change to the operation as noted above shall be documented in the Annual Report. Each year prior to and through the winter season the Street Superintendent shall analyze its salt supply and the rate it is being applied during the operations. If needed the amount of salt ordered, used and applied shall be adjusted. This evaluation shall be documented within the Annual Report. Salt storage and loading operations shall be in accordance with the City Yards Stormwater Pollution Plan. Brine and sand solutions shall be evaluated yearly for possible de-icing operations. If the Street Superintendent chooses to use sand for de-icing operations then additional street sweeping and inlet cleaning operations shall be evaluated. The Street Superintendent shall track the salt/sand/brine usage for each event and provide a monthly total to the Stormwater Staff by the end of February each year for inclusion in the Annual Report. Any adjustments made

shall be documented and provided to the Stormwater Staff for inclusion in the Annual Report.

11.0 Right-of Way and City-Owned Property Maintenance

11.1 Maintenance

In the City of Rockford property owners are responsible for mowing the right-of-way adjacent to their properties. Since the City owns approximately 900 properties the Street Division and the Community & Economic Development Department are responsible for maintaining these properties and their adjacent right-of-way. There are, also, various sections of right-of-way on arterial and collector level roads that the City is responsible for regardless of adjacent property ownership. The City contracts out the maintenance of these properties and the right-of-way and the specifications for those vendors are in Appendix D – City-wide Grounds Maintenance and in Appendix E - City Streets – Tree & Landscaping Maintenance.

11.2 Documentation

The Street Division shall randomly inspect the contractors' performance and document whether the contractor is meeting the requirements of the specifications. The Street Superintendent or the Street Supervisors shall determine if the lack of performance is addressed by verbal or written communication and whether its' severity warrants a deduction from the contractor's pay request.

City of Rockford

Right-of-Way & Drainageway Inspection &
Maintenance Standard Operating Procedures

APPENDIX A

Chapter 4: Severe Erosion (ER)



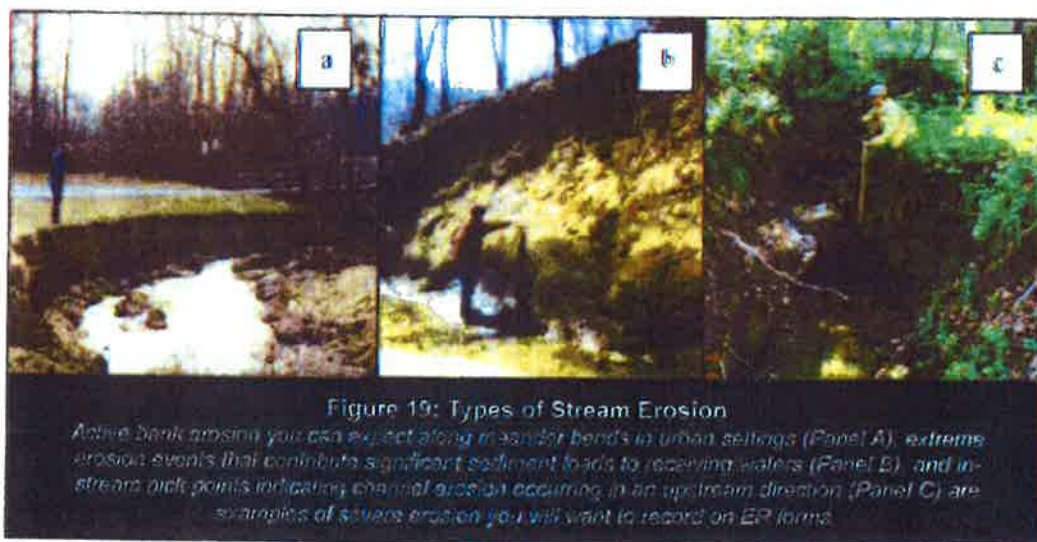
The USA assesses the most severe eroding banks along the survey reach, particularly at places where valuable infrastructure is threatened. Specifically, you will look for potential stream repair or restoration opportunities such as bank stabilization or grade control.

4.1 About Erosion

Stream erosion reflects the natural process of channel migration and adjustment, whereby streams continuously meander, widen and narrow in an attempt to reach a stable equilibrium. The balance between sediment load and discharge can be disrupted by urbanization. Severe erosion can occur when a stream's current velocity exceeds stability thresholds for bank materials at channel boundaries. Reduced bank stability caused by increased bankfull flooding can lead to rapid and excessive bank erosion as the stream adjusts to the changing hydrologic conditions.

The process of channel widening or downcutting can worsen as streams become progressively disconnected from their flood plain. Nick points occur where significant changes in streambed elevation are caused by channel incision, and are indicators of dynamic channel processes at work. Eroding banks can cause loss of property, destroy in-stream habitat, and contribute significant sediment loads downstream. Trimble (1997) estimated that more than half of the sediment loads from highly urban watersheds were derived from eroded stream banks. Figure 19 shows various examples of stream erosion you may encounter while conducting an ER assessment.

Extensive bank erosion and channel headcuts should be expected in urban subwatersheds. The ER form only collects information on localized nick points and banks where erosion greatly exceeds average reach conditions. Broader bank stability conditions are assessed as part of the overall RCH assessment (Chapter 11).



Chapter 4: Severe Erosion (ER)

Questions to ask when assessing eroded banks:

Is this area more severe than the rest of the survey reach?

Is infrastructure or property threatened?

What appears to be the cause of the erosion?

Are the banks actively contributing sediment to the stream?

Is this site a candidate for bank stabilization or grade control?

Severely eroded banks are evaluated during the USA for several reasons:

Nature and type of channel erosion:

Knowing the nature and type of erosion within urban streams can help determine how eroding areas are influencing upstream and downstream reaches. The dominant channel erosion process in an urban stream often dictates which types of stream repair and restoration practices should be applied, if any (Manual 4). Locating nick points or headcuts can indicate where upstream erosion problems may occur in the future given current hydrologic conditions. A quantitative estimate of bank erosion can be used to model subwatershed sediment loadings.

Severity of bank erosion: While most urban streams exhibit some evidence of past or current bank erosion, the ER helps identify the most severe locations for potential bank stabilization or restoration (although they may not always be practical or feasible given overall subwatershed restoration goals).

Threatened infrastructure: Excessive erosion may expose or undermine existing infrastructure such as outfalls, sewer lines, telephone polls, bridge abutments, roads, parking lots, or other structures built too close to the stream. In some cases, it may be critical to repair or stabilize eroding areas to prevent future damage to valuable infrastructure.

4.2 Introduction to the ER Form

This section introduces the severe erosion impact form (ER) that assesses individual locations of eroded stream banks encountered during your stream walk. You are asked to record basic data on the location of erosion sites, estimate current channel dynamics and dimensions, and identify potential bank stabilization opportunities at each problem site. This section describes each part of the ER form, and provides guidance on how to complete it. Appendix A contains a blank copy of the ER impact form. A completed example ER form is included at the end of this chapter in Section 4.6, along with detailed explanations to help clarify how the field crew filled out each section of the form.

The first part of the ER form contains general header information common to all impact forms, and is self-explanatory.

You may want to modify the header section to reflect your reach and site labeling system, and whether you are using GPS units to fix locations. If you are using GPS units, record the beginning and end coordinates for each site, the GPS unit ID # and an LMK number. If the eroded bank is less than 100 feet long, GPS cannot calculate an accurate length, and you should measure it by pacing or with a tape measure.

The next part of the ER form asks you to describe the general channel processes that affect the eroding bank or stream channel. You should note the location and dimensions of the eroding area, as well as the ownership of the adjacent stream corridor.

Chapter 4: Severe Erosion (ER)

You are asked to determine the overall **channel process** affecting the erosion site (e.g., is it aggrading or degrading), and to characterize how the channel process exerts itself on the stream (e.g., scour, slope failure, etc.). Of significant interest are headcuts and **nick points**, which are locations where active channel erosion is migrating in an upstream direction. Nick points are excellent indicators of the active channel erosion dynamics and directly affect the design of stream restoration projects. **Headcuts** observed on the side of a stream may also indicate the presence of an outfall discharging to the flood plain or side slope. You should trace these headcuts to their source. **Scour** is the process of removing bed or bank material through the erosive action of flowing water. **Bank failure** occurs when the toe of the stream bank is eroded beyond the point of bank support. **Slope failure** is often used describe the failure at steep bank slopes.

While not everyone has a full understanding of urban stream geomorphology, Table 13 gives some tips on how to determine the dominant channel processes in the stream. Table 14 also illustrates what many of these channel processes look like in the stream. If you feel uncomfortable about describing the channel process, simply check the currently unknown box.

Each eroded bank section should be recorded as either left, right, or both banks, and whether it occurs on a bend in the stream, or along a relatively straight section. Headcuts branching off the stream should also be recorded as either left or right bank, while nick points are, by definition, located within the stream channel itself. Bank erosion is typically found along meander bends and may be enhanced if the bend occurs against a steep slope.

Table 13: Features Used to Determine Current Channel Process		
Process	Definition	Geomorphic Evidence
Aggradation	The geologic process by which a streambed is raised in elevation by the deposition of additional material transported from upstream (opposite of degradation)*	Mid-channel bars Embedded riffles Siltation in pools Accretion on point bars Deposition in the overbank zone
Degradation	The removal of streambed materials caused by the erosional force of water flow that results in a lowering of the bed elevation throughout the reach (opposite of downcutting)*	Deepened or "entrenched" stream bed Cut face on bar forms Headcutting and nickpoint migration Suspended armor layer in bank Terrace cut through older bar material Exposed sanitary or storm sewers
Downcutting (or incision)	Deepening of stream channel cross section resulting from process of degradation*	Tall banks (may see stratification) Disconnection from flood plain May occur if widening prohibited
Headcutting	The erosion of the channel bed, progressing in an upstream direction*	Nickpoints Small drops in elevation (mini waterfalls) Abnormally steeped channel segments
Widening	Increased width of stream channel cross section resulting from degradation process	Falling/leaning trees Scour on both banks through riffle Exposed tree roots; Fracture lines along top of bank Exposed infrastructure
Stable	Channel in balance between aggrading and degrading forces	Water reaches toe of each bank Moss on rocks or extending down into bottom of bank Banks are stable; connected to flood plain Erosion is slight and limited to meander bends

* Definitions from the Washington State Aquatic Habitat Guidelines Program (2002)

Chapter 4: Severe Erosion (ER)

The ER form also asks for some basic channel and bank dimensions. Figure 20 provides guidance on how to measure the cross-sectional area of a stream channel. **Bank height** is typically the distance from top of water to top of bank. At streamside headcuts, be sure to estimate the length of active erosion, as well as its potential distance if the headcut has not migrated all the way to its source. For nick points, record the height and distance to the next upstream grade control structure such as a road crossing or channelized section. Alternatively, you can simply note the location

of the next grade control structure and calculate the length back in the office.

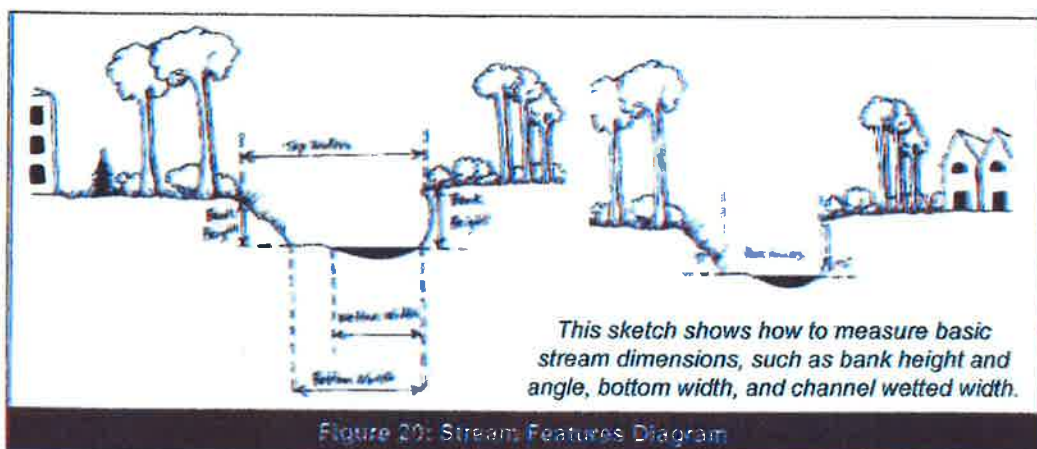
The last part of the ER form allows you to recommend any potential restoration practices that may be appropriate for the eroded bank (Box 6). Envisioning stream restoration potential can seem difficult at first, but can be acquired with a little study and a lot of practice. Some practices to consider include bank stabilization, grade control, or other stream repairs. Rigid bank stabilization includes such things as boulder revetments, root wads,

Table 14: Erosion Characteristics to Note During Site Assessment		
		
Stable reach, with low banks, stream still has access to flood plain at high flows.	Aggrading reach with obvious formation of mid channel bars.	Signs of degradation include visible stratification lines in stream bank
		
Downcutting reach with tall banks on either side	Presence of manhole stack in stream is evidence of stream widening process	Moss covered banks are indicators that banks have since stabilized
		
Extreme erosion can occur when streams cut into steep slopes. Check level of soil consolidation in these areas to see if actively eroding	Below this eroded bench is a stabilized stream bank. This should not be considered as active bank erosion.	Headcut rapidly migrating upwards towards an outfall. Note collapse of adjacent vegetation

Chapter 4: Severe Erosion (ER)

rip rap, or other relatively hard structures. Soft bank stabilization practices include coir fiber logs, live fascines, brush mattresses, or other bioengineering techniques that use vegetation to protect the banks (Figure 21). Grade control practices refer to step pools, rock vanes, or log drops that prevent the migration of headcuts (Figure 22). These and other stream repair practices are described in more detail in Manual 4.

The **erosion severity score** rates the extent of erosion on a five-point scale, where five is the most severe. You should also check to see if access is available to get heavy equipment to the site. Erosion severity and access scores should be marked on the ER form to identify the most severe and accessible eroded banks in the subwatershed.



Chapter 4: Severe Erosion (ER)

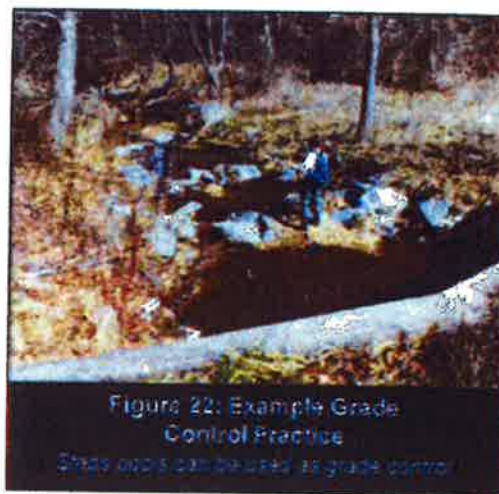
4.3 Which Eroded Banks Should I Record?

Some bank erosion should be expected in most urban streams, and it is unrealistic to have field crews GPS and assess every foot of eroded bank if restoration is not practical. Therefore, slope failures, bank sloughing, incision, or channel enlargement should only be recorded for banks that are noticeably worse than the "average" eroded bank along the survey reach (Figure 23). Sites with average bank erosion should only be counted if adjacent infrastructure is threatened or significant property loss is evident. Streamside headcuts and channel nick points with elevation changes of at least two feet should always be recorded, since they signal that active channel erosion is migrating upstream.

4.4 Field Assessment Tips

This list provides some quick tips for assessing stream erosion:

- Track all headcuts to their source, even if they are lateral to the stream.
- Only include channel nick points if the vertical change in stream elevation is more than a foot.
- Look for root hairs on stream banks to determine active erosion.
- Look for signs of major sediment deposition to determine channel degradation.
- Stratified layers in the bank may be a clue that the stream is downcutting.
- Banks composed of unconsolidated materials such as gravel, sand, or silt are often more unstable than those of compacted clay.
- If bedrock is present, then stream widening may be the dominant channel process. In this case, bank height may not be greater than average reach conditions, but the increase in cross sectional area may be greater.
- Make sure to look behind overhanging vegetation to determine extent of bank erosion and vegetative cover.
- Be sure not to confuse historic channel migration features with newly formed, actively eroding benches.
- Don't worry if you can't envision stream restoration. Take a look at Manual 4, and tour some local stream restoration projects prior to performing the ER.



Chapter 4: Severe Erosion (ER)

Table 15: How ER Data Can Be Used	
Problem Assessed	Nature and type of channel erosion Severity of bank erosion Threatened infrastructure
Potential Restoration Practice (Manual profile sheets)	Potential sites for bank stabilization (R-3, R-15) Grade control (R-18 to R-21)
Stream Corridor Metric	# of severe bank erosion sites Estimated bank erosion sediment load
Output for Planning	Map of erosion sites
*The code in parentheses refers to the appropriate restoration profile sheet in the Restoration Manual Series. R- sheets can be found in Manual 4: Stream Repair Practices	

4.5 Using ER Data in Subwatershed Restoration

Severe erosion data can be used to identify eroded banks, generate a list of potential stream repair practices, develop stream erosion metrics, and generate planning maps (Table 15). This information can show the degree to which channel erosion poses a significant threat in the stream corridor and how important stream stabilization and repair projects will be in the overall restoration plan.

Chapter 4: Severe Erosion (ER)

4.6 Example ER Form

The severe erosion impact form (ER) assesses individual locations of eroded stream banks encountered during your stream walk. You are asked to record basic data on the location of erosion sites, estimate current channel

dynamics and dimensions, and identify potential bank stabilization opportunities at each problem site. A detailed explanation of how the field crew filled out each section of this example form is included on the next page.

Severe Bank Erosion		ER	
WATERSHED/SUBWASHED: <u>SMILEY RUN</u>		DATE: <u>3/10/03</u>	ASSESSED BY: <u>AGL, SUB</u>
SURVEY REACH: <u>102-1</u>		TIME: <u>9:45 AM</u>	PHOTO ID (CAMERA-PICTURE): <u>A</u> # <u>03-04</u>
START LAT: <u>40° 15' 00" N</u> LONG: <u>88° 15' 00" W</u> LMK: <u></u>		GPS: (Unit ID): <u></u>	
END LAT: <u>40° 15' 00" N</u> LONG: <u>88° 15' 00" W</u> LMK: <u></u>			
PROCESS: <input type="checkbox"/> Currently unknown <input type="checkbox"/> Downcutting <input type="checkbox"/> Widening <input type="checkbox"/> Headcutting <input type="checkbox"/> Aggrading <input type="checkbox"/> Sed. deposition <input type="checkbox"/> Bank of concern: <input type="checkbox"/> LT <input checked="" type="checkbox"/> RT <input type="checkbox"/> Both (loading downstream) <input type="checkbox"/> LOCATION: <input type="checkbox"/> Meander bend <input type="checkbox"/> Straight section <input checked="" type="checkbox"/> Steep slope/valley wall <input type="checkbox"/> Other: <u>TAKE END MEASUREMENT</u>			
DIMENSIONS: Length (if no GPS) LT: <u>100 ft</u> and/or RT: <u>100 ft</u> Bottom width: <u>10 ft</u> Bank Ht: <u>8.5 ft</u> and/or RT: <u>8.5 ft</u> Top width: <u>15 ft</u> Bank Angle: <u>90°</u> and/or RT: <u>90°</u> Wetted Width: <u>7.5 ft</u>			
LAND OWNERSHIP: <input checked="" type="checkbox"/> Private <input type="checkbox"/> Public <input type="checkbox"/> Unknown LAND COVER: <input type="checkbox"/> Forest <input type="checkbox"/> Field/Ag <input type="checkbox"/> Developed:			
POTENTIAL RESTORATION CANDIDATE: <input type="checkbox"/> No <input type="checkbox"/> Grade control <input checked="" type="checkbox"/> Bank stabilization <input type="checkbox"/> Other:			
THREAT TO PROPERTY/INFRASTRUCTURE: <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes (Describe): <u>SEWER LINE</u>			
EXISTING RIPARIAN WIDTH: <input type="checkbox"/> <25 ft <input checked="" type="checkbox"/> 25-50 ft <input type="checkbox"/> 50-75 ft <input type="checkbox"/> 75-100 ft <input type="checkbox"/> >100 ft			
EROSION SEVERITY (circle): <u>5</u> Active downcutting; full banks on both sides of the stream eroding at a fast rate; erosion contributing significant amount of sediment to stream; obvious threat to property or infrastructure. <u>3</u> Fair downcutting evident; active stream widening; banks actively eroding at a moderate rate; no threat to property or infrastructure. <u>2</u> Grade and width stable; isolated areas of bank failure; likely caused by a pipe outfall, local scour, impaired riparian vegetation or adjacent use.			
ACCESS: <u>3</u> Good access; Open area to public; ownership, sufficient room to stockpile materials; easy stream channel access for heavy equipment using existing roads or trails. <u>4</u> Fair access; Forested or developed area adjacent to stream. Access requires tree removal or impact to landscaped areas. Stockpile areas small or distant from stream. <u>2</u> Difficult access. Must cross wetland, steep slope or other sensitive areas to access stream. Minimal stockpile areas available and/or located at great distance from stream section. Specialized heavy equipment required.			
NOTES/CROSS SECTION SKETCH: <p>BIG MESS!! JUST UPSTREAM OF GROCERY STORE, BANK ACTIVELY ERODING, HEAVY SEDIMENT DEPOSITION IN STREAM, SEWER LINE EXPOSED.</p>			
REPORTED TO AUTHORITIES: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			

How the Example ER Form Was Completed

Part A

The field crews in this example assessed an eroded bank in the Smiley Run subwatershed in survey reach 102-1. They took two photos at this location that also happened to be the first excessively eroded site they encountered in the reach.

Part B

In this part of the ER form, the eroded bank extended about 100 feet along the right bank and appeared to be threatening an embankment. Measured bank height was almost nine feet.

Part C

Here the field crew identified an eroded bank as a potential candidate for bank stabilization due to an exposed sewer line. Because of the immediate threat to infrastructure, the crew rated the bank erosion as a "5" for severity. Site access was considered good, although the best access was across private property.

Severe Bank Erosion

ER

WATERSHED/SUBSHED:		DATE: ____/____/____		ASSESSED BY:	
SURVEY REACH:		TIME: ____:____AM/PM		PHOTO ID (CAMERA-PIC #): ____/____	
SITE ID: (Condition-#) ER-_____	START LAT ____° ____' ____" LONG ____° ____' ____" LMK _____		GPS: (Unit ID)		
	END LAT ____° ____' ____" LONG ____° ____' ____" LMK _____				
PROCESS: <input type="checkbox"/> Currently unknown <input type="checkbox"/> Downcutting <input type="checkbox"/> Bed scour <input type="checkbox"/> Widening <input type="checkbox"/> Bank failure <input type="checkbox"/> Headcutting <input type="checkbox"/> Bank scour <input type="checkbox"/> Aggrading <input type="checkbox"/> Slope failure <input type="checkbox"/> Sed. deposition <input type="checkbox"/> Channelized		BANK OF CONCERN: <input type="checkbox"/> LT <input type="checkbox"/> RT <input type="checkbox"/> Both (<i>looking downstream</i>) LOCATION: <input type="checkbox"/> Meander bend <input type="checkbox"/> Straight section <input type="checkbox"/> Steep slope/valley wall <input type="checkbox"/> Other: DIMENSIONS: Length (<i>if no GPS</i>) LT _____ ft and/or RT _____ ft Bottom width _____ ft Bank Ht LT _____ ft and/or RT _____ ft Top width _____ ft Bank Angle LT _____° and/or RT _____° Wetted Width _____ ft			
LAND OWNERSHIP: <input type="checkbox"/> Private <input type="checkbox"/> Public <input type="checkbox"/> Unknown		LAND COVER: <input type="checkbox"/> Forest <input type="checkbox"/> Field/Ag <input type="checkbox"/> Developed:			
POTENTIAL RESTORATION CANDIDATE: <input type="checkbox"/> Grade control <input type="checkbox"/> Bank stabilization <input type="checkbox"/> No <input type="checkbox"/> Other:					
THREAT TO PROPERTY/INFRASTRUCTURE: <input type="checkbox"/> No <input type="checkbox"/> Yes (Describe):					
EXISTING RIPARIAN WIDTH: <input type="checkbox"/> ≤25 ft <input type="checkbox"/> 25 - 50 ft <input type="checkbox"/> 50-75ft <input type="checkbox"/> 75-100ft <input type="checkbox"/> >100ft					
EROSION SEVERITY (circle#) Channelized= <input type="checkbox"/> 1	Active downcutting; tall banks on both sides of the stream eroding at a fast rate; erosion contributing significant amount of sediment to stream; obvious threat to property or infrastructure.		Pat downcutting evident, active stream widening, banks actively eroding at a moderate rate; no threat to property or infrastructure		Grade and width stable; isolated areas of bank failure/erosion; likely caused by a pipe outfall, local scour, impaired riparian vegetation or adjacent use.
	5		4		3
ACCESS:	Good access: Open area in public ownership, sufficient room to stockpile materials, easy stream channel access for heavy equipment using existing roads or trails.		Fair access: Forested or developed area adjacent to stream. Access requires tree removal or impact to landscaped areas. Stockpile areas small or distant from stream.		Difficult access. Must cross wetland, steep slope or other sensitive areas to access stream. Minimal stockpile areas available and/or located a great distance from stream section. Specialized heavy equipment required.
	5		4		3
NOTES/CROSS SECTION SKETCH:					
REPORTED TO AUTHORITIES <input type="checkbox"/> Yes <input type="checkbox"/> No					

City of Rockford

Right-of-Way & Drainageway Inspection &
Maintenance Standard Operating Procedures

APPENDIX B

Chapter 9: Channel Modification (CM)



This part of the USA examines the extent to which stream channels are modified within the urban stream corridor. Examples of channel modifications include channelization, bank armoring, channel lining, and flood plain encroachment. During the channel modification (CM) assessment, you will be specifically looking for channel segments that may need structural repair or present opportunities for a more natural stream channel design.

9.1 About Channel Modification

Many urban stream segments have been historically modified to safely convey floodwaters, maintain a stable channel, restrict channel migration, or realign channels around property or infrastructure. The basic engineering approach is to “design” a new channel or flood plain with less roughness (e.g., boulders, vegetation, large woody debris, meander bends), greater slope, and expanded cross-sectional area to pass floodwaters more quickly and efficiently. As a consequence, some urban streams are converted into straight channels that are often lined with concrete to reduce roughness. In other streams with little

room for channel migration, banks are often fixed in place by armoring them with rip-rap and rock. In other situations, the capacity of the flood plain to accommodate floodwaters has been structurally altered by filling, dikes, or other measures.

In the most extreme instances, streams are entirely enclosed in underground pipes or extended culverts (note: this category of channel modification is already assessed in the USA by the SC form). Both stream and riparian habitat can be degraded or eliminated by channel modifications, and in some cases, fish passage may also be prevented. Newer, more environmentally-sensitive channel design may be a viable option to restore some natural features within modified channels. Figure 38 illustrates some of the typical channel modifications you may encounter during the USA.

Channel modifications are included in the USA survey for several reasons:

Stream Interruption: An understanding of channel modification gives you a sense of the degree of stream interruption in your subwatershed. This factor is extremely

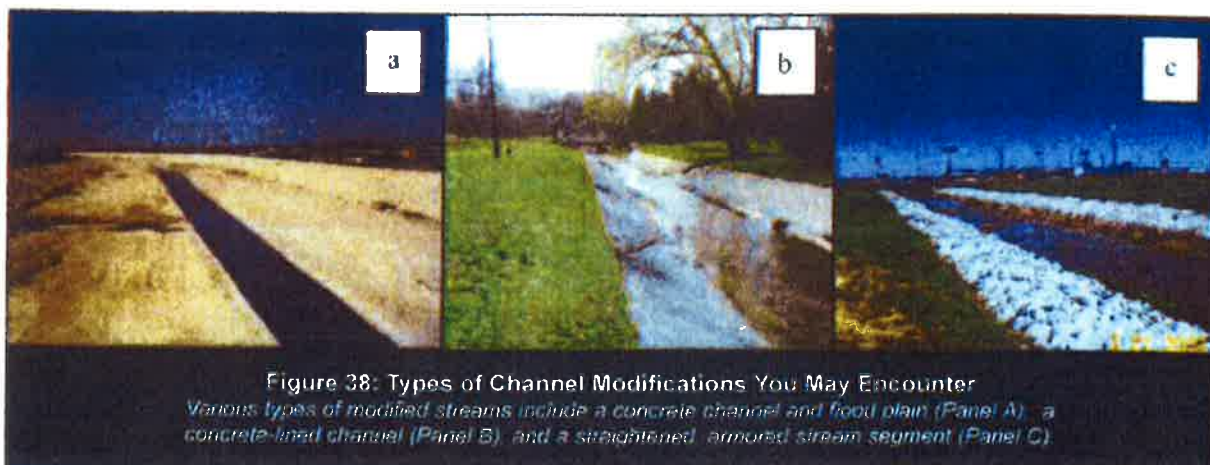


Figure 38: Types of Channel Modifications You May Encounter
Various types of modified streams include a concrete channel and flood plain (Panel A), a concrete-lined channel (Panel B), and a straightened, armored stream segment (Panel C).

Chapter 9: Channel Modification (CM)

Questions to ask when assessing channel modifications:

How severely is this modification affecting stream corridor habitat?

What is the length and purpose of the modification?

Can softer bank stabilization methods be used?

Can more natural channel design be employed?

important to determine where stream restoration projects make sense across the entire stream corridor.

Channelization: In some instances, channelized segments of the stream network are candidates for restoration using techniques such as de-channelization, natural channel design, and baseflow channel creation. Also, if the CM form suggests armoring or other stabilization techniques are failing, it may be a good opportunity to replace them with bioengineering techniques (Manual 4).

Habitat Degradation: The CM form quickly identifies the portion of the urban stream network where stream or riparian habitat has been degraded or eliminated by channel modification.

Tracking Stream Bank Armoring: While some communities have been stabilizing banks for decades, institutional knowledge of these project locations may have been lost. The CM form can help generate a map of these repair/restoration locations.

9.2 Introduction to the CM Form

This section introduces you to the channel modification (CM) assessment form. The form asks you to record basic data on the length and nature of the channel modification, and determine whether it might be a candidate for possible restoration. This section describes the four parts of the CM form, and provides guidance on how to complete each one.

Appendix A provides a blank version of the CM form. A completed example CM form is included at the end of this chapter in Section 9.6,

along with detailed explanations to help clarify how the field crew filled out each section of the form.

The first part of the CM form contains general header information that locates where the modified channel section is in the survey reach.

As always, the header should be modified to reflect your reach and site labeling system. If you are using a GPS unit, record the beginning and ending coordinates for each channel segment, and remember to note the GPS unit ID # and an LMK number. If the modified section is shorter than 50 feet long, GPS units cannot calculate an accurate length. Instead, measure these sections by pacing or with a tape measure. Depending on how extensively channels have been modified in the subwatershed, you may want to skip these short sections altogether.

The next part of the CM form asks you to describe the type of channel modification and the dominant material that comprises it.

Four basic options are available.

Channelization refers to a channel that has been excavated and straightened to eliminate natural meanders and bends. **Bank armoring** consists of an extended length of bank protected by hard stabilization measures, such as rip-rap, gabions, rock, or retaining walls.

Armoring can occur on one or both banks and should only be recorded if it extends more than 50 feet. Concrete channels should be checked on the CM form if the natural stream or banks have been replaced with concrete lining that extends more than 50 feet. Lastly, **flood plain encroachment** should be checked if you see obvious signs of earth fill, levees, or dikes in

Chapter 9: Channel Modification (CM)










the flood plain or stream corridor. Note that more than one type of channel modification can occur in each segment. If only one bank is affected by the modification, indicate this in the notes section on the CM form. Table 23 illustrates a number of common channel modifications you may encounter in the field.

Next, assess the condition of the channel, and note any perennial flow, sediment deposition, vegetative growth, or apparent connection with the flood plain. Each of these conditions provides useful clues about sediment and flow dynamics through the modified channel. You should also measure the basic dimensions of

the channel modification, take a photo, and draw a rough sketch.

The next part of the CM form asks you to assess the nature of the stream corridor adjacent to the channel modification and the current baseflow channel segment. Both factors are crucial to determine if natural channel design may be suitable for the channel segment.

You should estimate the “available” width of the adjacent stream corridor on both sides of the channel. Available means open ground, with no obvious structures or utilities present.

Table 23. Channel Modifications to Note During Site Assessment		
		
At crossings, only record on CM form if modification extends at least 100 feet up or downstream.	Measure the width of the channel bottom. If there is perennial flow, measure the water depth.	Channelized and concrete-lined segment that maintains good connectivity with the flood plain.
		
Sediment deposits and algal growth on bottom of a concrete-lined channel.	Rock revetments should be recorded as bank armoring.	Imbricated rip-rap used for bank stabilization; Record if 50 feet or longer
		
Gabion baskets used to stabilize a stream bank.	Highly urban subwatersheds frequently have most of their surface streams piped.	Exposed portion of an enclosed stream in a commercial area.

Chapter 9: Channel Modification (CM)

Also, note if any earthen fill, dikes, or levees occur in the adjacent stream corridor, which could constrain flood plain capacity. Lastly, you should examine the **baseflow channel**, noting the average depth of flow, and the fraction of the channel bottom over which it flows. Check to see if there is a defined low-flow channel, and record its average depth of flow.

The last part of the CM form asks you to recommend whether the modified channel might be a candidate for structural repair, more natural channel design, or fish barrier removal. Consult profile sheets R-5 to R-15, R-25, R-30, CR-32, and CR-33 in Manual 4 to familiarize yourself with these stream restoration techniques. If you don't feel comfortable making a restoration recommendation, simply check the "Can't tell" box. The CM form provides some guidance on how to score the overall **severity** of channel modification on a scale of one to five (five being the most severe). Figure 39 illustrates modified channel segments that should be considered restoration candidates.

9.3 Which Modified Channels Should I Record?

Most urban streams are extensively modified over much of their length, so only record "hard" channel modifications longer than 50 feet. Do not record channel modifications that

are immediately associated with structured stream crossings unless they extend 100 feet above or below the crossing. "Soft" bank stabilization practices should not be counted.

9.4 Field Assessment Tips

Some quick tips for evaluating channel modifications in the field are provided below:

- To reduce the number of forms you will need to complete, only record channel modifications that are at least 50 feet long.
- Also, you only need to record channel modifications associated with stream crossings if they extend at least 100 feet upstream or downstream of the crossing.
- Keep in mind that channel modifications can occur on the bed, banks, and flood plain of the stream corridor.
- If a channel modification extends on both sides of a road crossing that is used as a survey reach boundary, make sure to extend the survey reach to include the entire modified channel.
- Enclosed sections or extended culverts are picked up on the SC form and should not be recorded on the CM form.



Chapter 9: Channel Modification (CM)

Table 24. How CM Data Can Be Used	
Problem Assessed	Stream interruption Channelization Habitat degradation
Potential Restoration Practice (Manual Profile sheets)	Baseflow channel creation (R-25)* Natural channel design (CR-32) De-channelization (CR-33)
Stream Corridor Metric	Channelized length Channelized length per stream mile
Output for Planning	Map of potential fish barriers Map of channelized sections Map of potential de-channelization projects Map of grade control structures
*The code in parentheses refers to the appropriate restoration profile sheet in the Restoration Manual Series. R and CR-sheets can be found in Manual 4: Stream Repair and Practices	

9.5 Using CM Data in Subwatershed Restoration

Channel modification (CM) data can be used in several ways for restoration planning. CM data can be used to measure stream interruption, generate a list of stream restoration practices, develop stream channelization and habitat metrics, and generate planning maps (Table 24). CM data can help you decide whether channel modifications are a significant problem in the subwatershed and how important channel restoration should be in the overall restoration plan.

Chapter 9: Channel Modification (CM)

9.6 Example CM Form

The CM form asks you to record basic data on the length and nature of the channel modification, and determine whether it might be a candidate for possible restoration. A detailed

explanation of how the field crew filled out each section of this example form is included on the next page.

Channel Modification		CM	
WATERSHED/SUBSIDED: <u>SMILEY RUN</u>		DATE: <u>3/10/13</u>	ASSESSED BY: <u>KEC</u>
SURVEY REACH ID: <u>102-1</u>		TIME: <u>12:25</u> <u>PM</u>	PHOTO ID: (Camera Pic #) <u>4</u> # <u>08</u>
SITE ID: (Condition #) <u>CM-1</u>		START LAT <u>° ' "</u> LONG <u>° ' "</u> LMK <u>° ' "</u>	GPS: (Unit ID) <u>° ' "</u>
END LAT <u>° ' "</u> LONG <u>° ' "</u> LMK <u>° ' "</u>			
TYPE: <input checked="" type="checkbox"/> Channelization <input checked="" type="checkbox"/> Bank armoring <input type="checkbox"/> concrete channel <input type="checkbox"/> Floodplain encroachment <input type="checkbox"/> Other:			
MATERIALS: <input type="checkbox"/> Concrete <input type="checkbox"/> Gabion <input checked="" type="checkbox"/> Rip Rap <input type="checkbox"/> Earthen <input type="checkbox"/> Metal <input type="checkbox"/> Other:		Does channel have perennial flow? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Is there evidence of sediment deposition? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Is vegetation growing in channel? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Is channel connected to floodplain? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
BASE FLOW CHANNEL Depth of flow <u>10</u> (in) Defined low flow channel? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No % of channel bottom <u>70</u> %		ADJACENT STREAM CORRIDOR Available width LT <u>50</u> (ft) RT <u>100</u> (ft) Utilities Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Fill in floodplain? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
POTENTIAL RESTORATION CANDIDATE <input checked="" type="checkbox"/> No <input type="checkbox"/> Structural repair <input type="checkbox"/> Base flow channel creation <input type="checkbox"/> Natural channel design <input type="checkbox"/> Can't tell <input type="checkbox"/> De-channelization <input type="checkbox"/> Fish barrier removal <input type="checkbox"/> Bioengineering			
CHANNELIZATION SEVERITY: (Circle #)	A long section of concrete spurs (>500') channel where water is very shallow (<1' deep) with no natural sediments present in the channel. A moderate length (>200') but channel stabilized and beginning to function as a natural stream channel. Vegetated bars may have formed in channel. An earthen channel less than 100 ft with good water depth, a natural sediment bottom, and flow and shape similar to the unchannelized stream reaches above and below impacted area.		
NOTES:	Bottom of channel is natural - just banks have been straightened and armored downstream of road crossing - seems a bit excessive - not much rest potential		

How the Example CM Form was Completed

Part A

In this example, the field crew assessed an armored stream section in the Smiley Run subwatershed in survey reach 102-1, and took a single photo at this location.

Part B

The field crew evaluated a channel segment armored with 150 feet of rip-rap on both banks as part of a past bank stabilization project. The channel had perennial flow, but showed no signs of deposition or vegetative growth in the channel, which also did not appear to be connected to the flood plain.

Part C

In this part of the form, the field crew observed a defined low flow channel. Flow was approximately 10 inches deep and took up most of the width of the channel. Exploring the adjacent flood plain area, the field crew observed no fill or excavation activities, though utilities did interrupt the stream corridor on the left bank.

Part D

The field crew assigned this segment a low severity rating due to its natural channel bottom and relatively short distance of modification. They were unable to envision a particular type of restoration at the site.

Channel Modification

CM

WATERSHED/SUBSHED:		DATE: ____/____/____		ASSESSED BY:	
SURVEY REACH ID:		TIME: ____:____ AM/PM		PHOTO ID: (Camera-Pic #) ____/#	
SITE ID: (Condition-#) CM-____	START LAT ____° ____' ____" LONG ____° ____' ____" LMK ____	GPS: (Unit ID)			
	END LAT ____° ____' ____" LONG ____° ____' ____" LMK ____				
TYPE: <input type="checkbox"/> Channelization <input type="checkbox"/> Bank armoring <input type="checkbox"/> concrete channel <input type="checkbox"/> Floodplain encroachment <input type="checkbox"/> Other:					
MATERIAL: <input type="checkbox"/> Concrete <input type="checkbox"/> Gabion <input type="checkbox"/> Rip Rap <input type="checkbox"/> Earthen <input type="checkbox"/> Metal <input type="checkbox"/> Other:		DIMENSIONS: Does channel have perennial flow? <input type="checkbox"/> Yes <input type="checkbox"/> No Is there evidence of sediment deposition? <input type="checkbox"/> Yes <input type="checkbox"/> No Is vegetation growing in channel? <input type="checkbox"/> Yes <input type="checkbox"/> No Is channel connected to floodplain? <input type="checkbox"/> Yes <input type="checkbox"/> No Height _____ (ft) Bottom Width _____ (ft) Top Width: _____ (ft) Length: _____ (ft)			
BASE FLOW CHANNEL Depth of flow _____ (in) Defined low flow channel? <input type="checkbox"/> Yes <input type="checkbox"/> No % of channel bottom _____ %		ADJACENT STREAM CORRIDOR Available width LT _____ (ft) RT _____ (ft) Utilities Present? <input type="checkbox"/> Yes <input type="checkbox"/> No Fill in floodplain? <input type="checkbox"/> Yes <input type="checkbox"/> No			
POTENTIAL RESTORATION CANDIDATE <input type="checkbox"/> Structural repair <input type="checkbox"/> Base flow channel creation <input type="checkbox"/> Natural channel design <input type="checkbox"/> Can't tell <input type="checkbox"/> no <input type="checkbox"/> De-channelization <input type="checkbox"/> Fish barrier removal <input type="checkbox"/> Bioengineering					
CHANNEL-IZATION SEVERITY: (Circle #)	A long section of concrete stream (>500') channel where water is very shallow (<1" deep) with no natural sediments present in the channel.				
	A moderate length (> 200') ,but channel stabilized and beginning to function as a natural stream channel. Vegetated bars may have formed in channel.				
	An earthen channel less than 100 ft with good water depth, a natural sediment bottom, and size and shape similar to the unchanneled stream reaches above and below impacted area.				
NOTES:					

City of Rockford

Right-of-Way & Drainageway Inspection &
Maintenance Standard Operating Procedures

APPENDIX C



Guidelines for Creek/Ditch Maintenance by Creekside Property Owners

Creeks carry direct runoff from creekside properties and through linkage with manmade storm drains which carry runoff from the rest of the City's land area. This interconnected system is the means by which stormwater runoff is contained to minimize flooding. Maintenance of the creeks is the responsibility of the owner whose property includes/abuts a creek (typically property line is to the centerline of a creek). When the creek area is not properly maintained, the resulting obstructions can lead to increased flooding, changes in the course of the creek and increased erosion of the obstructed property or downstream of the property. When maintained properly, creeks are a natural resource that provide habitat for wildlife and provide aesthetic benefits that can increase the value of creekside properties. The purpose of this guide is to provide you, the creekside property owner, with practical information for the proper care and preventative maintenance of the creek as a part of your property.

The City of Rockford requires the following guidelines for maintaining the creek on your property:



- **Remove all debris and garbage:** This may include bottles and cans, broken concrete, tires, fallen fences, appliances or any other man-made objects. This also includes wood and fallen trees or tree limbs. This is the property owner's responsibility even if the object has washed down from upstream. It is recommended that all stored material on your property be placed a minimum of 10 feet away from the top of the bank to avoid material washing away into the creek during heavy storms. Sheds and minor structures should be anchored to the ground if closer than 10 feet.

- **Remove vegetation except low ground cover from the bottom of the stream channel up to the top of the bank (flood line):** This includes shrubs, tulle, pampas grass, cattails and bamboo. Leave all root systems in place to help with erosion prevention. Remove hanging vines that may create an obstruction to the natural flow of the water in the creek. Berry vines should be trimmed back to the bank.

- **Remove tree limbs within or hanging over the creek to within 2 feet of the top of the creek bank:** Any single tree of 2 inch diameter or greater which is living and not leaning toward the creek may remain. Trim any trees growing in clusters, trees with multiple trunks or trees within the stream channel that may cause an obstruction to the flow of water, but leaving the root system in place.

- **Do not clear-cut the creek slope:** Leave ground cover such as low grasses or vines. Trees should be cut at ground level with roots left in the ground.

- **Keep slope stabilization measures in good condition:** If you have existing slope stabilization measures such as rip-rap (rock, concrete, etc.) a

retaining wall, or jute covering, keep these measures in good condition. If these measures require any repair or if you want to install a measure to stabilize a slope, you must first contact the jurisdictional agencies to determine if a permit will be necessary. If any work is done to alter the creek including widening, filling, dredging/altering the natural creek flow, an Army Corps of Engineers and Illinois Department of Natural Resources permit may be required.

Ditch Maintenance: You may have a ditch or drainage swale on your property that is there to convey stormwater either to the rear or front of your property or from one side of your property to the other. These ditches/swales shall be mowed regularly, kept clear of obstruction and shall not be filled with dirt or mulch. Lack of proper maintenance may cause flooding in and around your property.

For assistance, please contact the Stormwater & Environmental Team by calling 815-987-5570, Mon.-Fri. between 8am-5pm.

April, 2014

City of Rockford

Right-of-Way & Drainageway Inspection &
Maintenance Standard Operating Procedures

APPENDIX D

Appendix D

City-Wide Grounds Maintenance

1.0 Specific Requirements

- 1.1 Seasonal Work. The vendor shall remove all leaves and winter debris or trash from beds, turf and non-turf areas twice a year, once in the spring and once in the fall.
- 1.2 On-site preparation and cleanup. Prior to each mowing occurrence the vendor shall pick clean the entire site, removing all litter, trash, branches, glass, and debris. The first cycle of mowing will generally entail an increased amount of litter picking over subsequent cycles. The vendor will not be paid additional any amount over and above what is bid for each site, therefore should consider this in their overall bid submittal. The vendor shall notify the City Representative of excessive litter, illegal dumping or large tree limbs. If this condition exists, it will be addressed by the City upon inspection and approval of the City Representative. Paper, cups and other litter must not be mowed so as not to detract from the sites' appearance. When mowing along roadways, the first two (2) swaths cuts along the curb or roadway edge shall be made in such a direction that all clippings discharged from mowers shall be away from the curb or roadway edge. If the Vendor is determined by the City Representative to be in violation of the aforementioned standards, said Vendor shall be subject to liquidated damages as outlined in paragraph 4.10. and any additional cost to the City for cleanup shall be deducted from subsequent invoices submitted by the Vendor.
- 1.3 Trimming. Final trimming around permanent objects such as trees, posts, shrubs, fences, guard rails, signs, curbsides, and roadway edges, will be accomplished with suitable mechanical equipment at the same cutting height as the rest of the turf so as not to detract from the appearance of the site. Trimmings are to be cleaned from all hard surfaces (sidewalks, curbs, driveways, and streets).
- 1.4 Labor, Tools, and Equipment. The vendor agrees to furnish all necessary labor, tools and equipment in connection with the grounds maintenance of the specified locations. Vendor shall provide a list of available staffing to be used in his operation.
- 1.5 Equipment. Mowing equipment can include riding mowers, walk behind mowers, nylon line trimmers and hand clipping, where necessary. Mowing equipment shall be kept in good, safe operating condition with sharp blades so that the grass is cut properly and in such a condition that oil and gasoline are not leaked. Vendor shall submit a list of equipment and indicate the age of said equipment to be used for mowing.
- 1.6 Equipment/safety. The vendor shall remove equipment at the completion of the workday. The City of Rockford does not assume any responsibility, at any time, for the protection of or loss of equipment or supplies either at the work site or elsewhere.

- 1.7 Fueling and Oiling. Spilled gasoline and oil kills grass. Mowers will not be fueled and oiled in grass areas: they should be moved to paved areas for this function.
- 1.8 Scheduling. The vendor will perform the work in accordance with the schedule provided or the instructions received from the City representative. Generally, the work may be performed between the hours of 7:00 a.m. and 6:00 p.m. and on any day or days of the week in accordance with the City's noise ordinance (see section 2.2). If special circumstances require different hours the vendor shall seek approval for such a change from the City. The City reserves the right to add additional sites during the mowing season under the terms of this contract. Contractor quotes for any additional sites shall be consistent with other sites of similar size and difficulty currently included in this contract. The City also reserves the right to adjust the frequency of the mowing cycle based on need, or request site specific mowing on demand. The respective City representative shall be notified within 24 hours upon completion of a scheduled mowing cycle. All invoices shall be submitted to City representative within 10 days of completing a mowing cycle and must include a valid invoice number, the specific cycle for which the invoice is presented, the group or Block of sites, and the correct date. Do not submit invoices directly to the City Finance Department. They will not be paid until validated by respective City representative(s).
- 1.9 Liquidated Damages. The Vendor is responsible to remove trash & debris prior to each mowing occurrence, and is also responsible for the removal of grass clippings from all adjacent hard surfaces subsequent to mowing each site as outlined in paragraph 4.2. If the Vendor fails to effectively remove trash, debris and clippings based on the observance of the Designated City of Rockford representative, the City will notify him of default. In the event of default, the City will either use City staff or a third party to complete clean-up and any *additional cost to the City shall be deducted from subsequent payment(s) owed the Vendor.*

2.0 Detailed Specifications

2.1 Public Works Division – Right of Ways and Properties

- 2.1.1 Maintenance. Mow lawn as instructed by schedule provided by the City representative. Mowing should be done from the street curb inward, using cement property markers, utility poles, fences, bushes and tree lines, and farm fields to determine the right-of-way boundary width. When mowing along roadways, the first two (2) swath cuts shall be made in such a manner as to discharge all clippings away from the roadway edge or curb.
- 2.1.2 Height of Grass/Height of Cut. Grass should never exceed six inches in height. Grass when cut should be 2" in height and no windrows of grass shall remain.
- 2.1.3 Weeds. Removal of weeds growing from along curb lines, roadway edges or sidewalks and drive approaches, so as not to detract from the appearance of the site, are the responsibility of the vendor. Weeds shall be

defined as all grasses, annual plants, and vegetation overgrowth and underbrush other than trees or shrubs provided.

- 2.1.4 Inaccessible areas. All areas too wet, too steep or otherwise inaccessible for use of standard mowers shall be line trimmed at the same frequency as the mowing schedule.
- 2.1.5 Frequency. Each location has listed an estimated amount of cuts during the contract period and is no guarantee of work to be performed under this contract. The total number of cuts is an estimate based on previous years. The City representative will establish and provide the vendor with a final schedule of mowing dates that is appropriate for each block of sites.
- 2.1.6 Locations. The City breaks out the maintenance of properties into packages to allow multiple vendors to complete the tasks as outlined above. The packages are broken down by Block and are shown in the next several tables.

Block A – Weekly Mow	
Site #	Location
A-1	Whitman St. & Ridge Ave. – Grant Ave. Cul-De-Sac Greenspace [approx. 18 acres]
A-2	Fairview Blvd. (middle island Blvd. from Morsay Dr north) Bag clippings [approx. 16 acres]
A-3	Morsay Dr. from NEX Fairview to Lynmar Ct. [approx. 3 acres]
A-4	Arden Ct. Detention Pond Drainage Area – If conditions are too wet to mow bottom, must string trim all. [approx. 1 acre]
A-5	Midway Theater Lot – East side of building. [approx. .75 acres]
A-6	Charles St. & 7th St – NW & SE Corner landscape areas. [approx. .07 acres]

Block B – Mow Every 2 Weeks	
Site #	Location
B-1	1000 Block, W State St. - as listed – [approx .24 acres each – approx. 2.8 acres total] Includes 1019, 1025, 1040, 1045, 1046, 1049, 1050, 1053, 1055, 1057, 1059, 1061, & 1062.
B-2	1100 Block, W State St.- as listed – [approx .43 acres each – approx. .85 acres total] Includes 1101, 1119, 1121, 1125, 1133, & 1137
B-3	1200 Block, W State St- as listed – [approx .14 acres each – approx. .82 acres total] Includes 1211, 1215, 1225, 1233, 1237, & 1239
B-4	1300 Block, W State St.- as listed – [approx .13 acres each – approx. 1.63 acres total] Includes 1304, 1305, 1307, 1308, 1311, 1312, 1315, 1316, 1319, 1322, 1323, 1326, 1332, & 1336
B-5	1400 Block, W State St., - as listed – [approx .27 acres each – approx. 1.9 acres total] Includes 1412, 1416, 1420, 1424, 1430, 1434, & 1455
B-6	1500 Block, W State St.- as listed – [approx .14 acres each – approx. .43 acres total] Includes 1503, 1505, & 1509
B-7	1600 thru 2000 Blocks, W State St.- as listed – [approx .19 acres each – approx. 2.24 acres total] Includes 1601, 1605, 1625, 1701, 1711, 1719, 1804, 1807, 1810, 1821, 1916, 1923, 2003, & 2007
B-8	2100 thru 2500 Blocks, W State St. - as listed – [approx .17 acres each – approx. 2.4 acres total] Includes 2104, 2108, 2123, 21XX, 2201, 2202, 2205, 2228, 2304, 2307, 2317, 2412, 2505, & 2510
B-9	2600 thru 2700 Blocks, W State St.- as listed – [approx .19 acres each – approx. 1.9 acres total] Includes 2601, 2607, 2710, 2716, & 2717
B-10	113 Carson Ct. – Lot behind 2223 W. State St. [approx .22 acres]
B-11	Forest Ave, 109, 113 & 125 – [approx .1 acres each – approx .3 acres total]
B-12	112 Lakin Terrace – [approx .1 acre]
B-13	Mulberry St. – 1010, 1042, 1050, 1056, 1060 & 1510 – [approx .2 acres each – approx. 1.2 acre total]
B-14	N. Avon St – 111 & 119 – [approx .33 acres total]
B-15	N. Central Ave – 120, 124 & 128 (3 Adjacent Lots)– [approx .51 acres total]
B-16	S. Avon St – 107, 109 & 113 – [approx .14 acres total]
B-17	114 Oakley Ave. – [approx .07 acre]
B-18	Oakwood Ave. – 106 & 109 – [approx .05 acres total]
B-19	117 S. Independence Ave. – [approx .04 acre]
B-20	110 S. Johnston – [approx .04 acre]
B-21	115 N Day Ave - [approx .09 acres]
B-22	Irving Ave - 119, 122, & 129 - [approx .15 acres total]

Block C – Weekly Mow	
Site #	Location
C-1	1740 Colorado – Drainage Area [<i>approx .14 acres</i>] If unable to mow due to being wet, need to string trim
C-2	2208 & 2211 Colorado – Drainage Areas [<i>approx .5 acres</i>] If unable to mow due to being wet, need to string trim
C-3	1620 Log Cabin - Vacant Lot [<i>approx .27 acres</i>]
C-4	1623 & 1649 Log Cabin – Vacant lots and part of this is a Drainage Area [<i>approx .39 acres</i>] - If unable to mow due to being wet, need to string trim
C-5	1822 Nebraska - Vacant Lot [<i>approx .21 acres</i>]
C-6	1827 Nebraska – Vacant Lot [<i>approx .13 acres</i>]
C-7	3533 Louisiana – Vacant Lot [<i>approx .28 acres</i>]
C-8	1727 MacArthur – Vacant Lot [<i>approx .19 acres</i>]
C-9	1731 MacArthur - Vacant Lot [<i>approx .19 acres</i>]
C-10	1716 Sexton - Vacant Lot [<i>approx .20 acres</i>]
C-11	2003 Montana – Drainage Area [<i>approx .19 acres</i>] If unable to mow due to being wet, need to string trim
C-12	3522 Westgate Pkwy – Vacant Lot [<i>approx .12 acres</i>]
C-13	WESLEYAN ST. DRAINAGE AREA (Flats Only) – From 20th St. to East of Ohio Pkwy. [<i>approx. 8.25 acres</i>]
C-14	20th ST. VIADUCT – South of Wesleyan North of Viaduct – Open Lot and Right of Way on both sides of 20 th St. South of viaduct litter pick & string trim both sides of road railroad tracks. [<i>approx.75 acres</i>]

Block D – Mow Every 2 Weeks	
Site #	Location
D-1	1200/ 1300 Block 6th Ave – City Lots as listed – [<i>approx. 1 acre total</i>] 1241, 1303, 1307, 1311, 1317, 1321, 1325, 1329, 1335, 1339, 1343, 1349, 1353, 1357
D-2	1400 Block 6th Ave & 700 Block 11th St – City Lots as listed – [approx. 1.38 acres total] 1403, 1407, 1411, 1417, 1424, 1427, 1429, 1435, 1439, ALSO 701 & 705 11th St
D-3	1500 Block 6th Ave – City Lots as listed – [approx. .82 acres total] 1501, 1507, 1515, 1519, 1525
D-4	1600 Block 6th Ave & 700 Block of 13th St – City Lots as listed – [approx. 2.5 acres total] 1601, 1602, 1609, 1611, 1615, 1621, 1625, 1629, 1633, 1637, 1641, 1645, 1649, 1653, 1657, 1659 ALSO 702 & 710 13th St
D-5	1300-1500 Blocks 7th Ave - 700 Block 9th St & 11th St– City Lots as listed – [approx. .98 acres total] 1310, 1316, 1320, 1324, 1340, 1342, 1346, 1352, 1358, 1408, 1414, 1420, 1430, 1444, 1450, 1502, 1506, 1510, 1514, 1516, 1522, ALSO 718, 724 & 726 9th St & 721 11th St
D-6	1600-1700 Blocks 7th Ave – City Lots as listed – [approx. 1.9 acres total] 1602, 1606, 1614, 1616, 1620, 1621, 1624, 1628, 1634 1650, 1658, 1662
D-7	700 – 900 Blocks 13th St & 700 Block of 7th Ave, City Lots as listed – [approx. .96 acres total] 800, 807, 811/ 813, 816, 817, 818, 901, 902, 913, 914 ALSO 1718 & 1724 (2 small lots) 7th Ave
D-8	800-1000 Blocks 14th St, City Lots as Listed – [approx. 1.2 acres total] 804, 808, 815, 816, 821, 825, 913, 917, 1009, 1015
D-9	800-900 Blocks 15th St, City Lots as Listed – [approx .65 acres total] 809, 815, 819, 919

Block E – Mow Every 2 Weeks	
Site #	Location
E-1	NW corner of N Main St and Vernon St - See Map, L Shaped Vacant Lot
E-2	SW corner of N Main St and Vernon St - See Map, Vacant Lot
E-3	SE corner of Auburn St and N Main St - See Map, Large Triangular Vacant Lot
E-4	NE corner of Myott Ave and N Main St - See Map, Large Vacant Lot
E-5	1430 N Court St - Parcel # 11-14-402-014 (approx. 0.11 acres)
E-6	CAMPUS HILLS BLVD. – West of N. Main. (Island) [<i>approx 0.12 acres</i>]
E-7	RIVERSIDE ST. – Between Halsted Rd. & Belmont St. to RR Tracks. [<i>approx. 1.0 acres</i>]
E-8	MERRIOTT CLOSE - Island [<i>approx 0.9 acres</i>]
E-9	RIVERSIDE BLVD -N. Rockton Av. to Central Av/Owens Center Rd. (south side of road) [<i>approx 2.2 acres</i>] (north side of road) [<i>approx 2.2 acres</i>]
E-10	NW DRAINAGE DITCH Belmont Blvd. to Riverside Blvd. (<i>access from Grouse Ct</i>) [<i>approx 4.6 acres</i> } (<i>Both sides of ditch</i>)
E-11	RIVERSIDE BLVD -N. Main St to N. Rockton Ave (southside of road) [<i>approx 1.6 acres</i>] (north side of road) [<i>approx 1.5 acres</i>]
E-12	N. ROCKTON AV. - Embury to Elmwood Rd. (east side of road) [<i>approx 1.2 acres</i>] (west side of road) [<i>approx .7 acres</i>]
E-13	ROCKTON AVE. & HALSTED RD. Lot on the south east corner next to Fire Station [<i>approx .3 acres</i>]
E-14	RIDGE & CUSTER – NW Corner & area West of RR. Tracks on south side of Custer Ave. [<i>approx .2 acres</i>]
E-15	HALSTED RD -Hazel St. to Searles Av. (south side of road) [<i>approx .14 acres</i>]
E-16	HALSTED RD. – Hazel to Central (north side) [<i>approx 1 acres</i>]
E-17	AUBURN & HORSMAN - NW Corner Mow between RR track and Auburn St [<i>approx 0.9 acres</i>]
E-18	ROW - Between Ridge Ave. & Huffman Blvd., RR Tracks to Adolphson St. [<i>approx. .8 acres</i>]
E-19	COUNTRY CLUB TERRACE – Mow Island (eastside of road) [<i>approx .25 acres</i>]
E-20	COUNTRY CLUB TERRACE @ WILLOUGHBY – Northwest corner west to Edson St.. { <i>approx .1 acres</i> }
E-21	4608 AUBURN ST. – City Lot [<i>approx. .5 acres</i>]
E-22	AUBURN ST. - From 3916 Auburn St to Johnston Ave (south side road) [<i>approx 1.6 acres</i>]
E-23	AUBURN ST. – South side of Auburn St. from Auburn High School to Springfield Ave. [<i>approx. .5 acres</i>]
E-24	GRACE ST. DEAD END – West of 2323 Grace St. & 1722 Tacoma to RR Tracks. [<i>approx. .3 acres</i>]
E-25	CENTRAL AV -Auburn St. to Kent Creek (eastside of road) [<i>approx 1.2 acres</i>]

Block F – Mow Every 2 Weeks	
Site #	Location
	3300 thru 3400 Blocks, W State St.- as listed – [approx .19 acres each – approx. 1.9 acres total]
F-1	Includes 33xx, 3320, 3330, 34xx, & 3410
F-2	Kilburn Ave, 111 & 125 – [approx. .57 acres]
F-3	112 Carbaugh Ave - [approx .16 acres]
F-4	302 & 234 N Hinkley Ave - Parcel # 11-22-106-032, 11-22-109-016 (approx. 0.33 acres)
F-5	118, 122, 124, 126 Concord Ave - Parcel # 11-20-277-002, 007, 008, 009, 010 (approx. 0.82 acres)
F-6	3xx Concord Ave - Parcel # 11-20-281-005 (approx. 0.10 acres)
F-7	430 Concord Ave - Parcel # 11-20-426-007 (approx. 0.19 acres)
F-8	3417 Green St - Parcel # 11-20-281-007 (approx. 0.08 acres)
F-9	130 Lexington Ave - Parcel # 11-20-278-011 (approx. 0.18 acres)
F-10	316 Lexington Ave - Parcel # 11-20-282-004 (approx. 0.18 acres)
F-11	3417 Chestnut St - Parcel # 11-20-279-013 (approx. 0.07 acres)
F-12	409, 411 S Horace Ave - Parcel # 11-21-306-026, 027 (approx. 0.37 acres)
F-13	5xx S Horace Ave - Parcel # 11-21-326-012 (approx. 0.12 acres)
F-14	3915 Delaware St - Parcel # 11-20-402-014 (approx. 0.17 acres)
F-15	520 Hartford Ave - Parcel # 11-20-429-012 (approx. 0.12 acres)
F-16	418 Albert Ave - Parcel # 11-21-226-011 (approx. 0.09 acres)
F-17	1130 Andrews St - Parcel # 11-22-131-010 (approx. 0.23 acres)
F-18	1131 Andrews St - Parcel # 11-22-128-014 (approx. 0.07 acres)
F-19	1402 Andrews & 330 N Hinkley Ave - Parcel # 11-22-106-024, 025 (approx. 0.16 acres)
F-20	452 N Avon St - Parcel # 11-22-128-017 (approx. 0.13 acres)
F-21	614 N Avon St - Parcel # 11-15-379-057 (approx. 0.27 acres)
F-22	715 Bluefield St - Parcel # 11-15-378-010 (approx. 0.11 acres)
F-23	17xx Chestnut St & 218 S Independence Ave - Parcel # 11-21-285-009, 004 (approx. 0.24 acres)
F-24	1918 Elm St - Parcel # 11-21-284-001 (approx. 0.09 acres)
F-25	1417 Mulberry St - Parcel # 11-22-109-032 (approx. 0.14 acres)
F-26	1435 Mulberry St - Parcel # 11-22-109-026 (approx. 0.15 acres)
F-27	1329 School St - Parcel # 11-15-380-038 (approx. 0.18 acres)
F-28	1502 School St - Parcel # 11-22-102-006 (approx. 0.11 acres)
F-29	210 Tay St - Parcel # 11-22-183-002 (approx. 0.06 acres)
F-30	211, 213, 219, 227 N Avon St, 2xx, 220, 226, 228 Ogden Ave, 10xx, 1045, 1047, 1051, 1055, 1061, 1067 Mulberry St & 10xx, 1036, 1044, 1050, 1056, 1060 W Jefferson St - Parcel # 11-22-251-001, 003, 004, 005, 016, 017, 018, 019, 020, 021, 037, 031, 030, 029, 028, 036, 010, 009, 008, 007, 006 (approx. 5.12 acres)
F-31	416 Underwood St - Parcel # 11-22-202-015 (approx. 0.14 acres)
F-32	436 & 440 Underwood St - Parcel # 11-22-202-008, 007 (approx. 0.28 acres)
F-33	450 Underwood St - Parcel # 11-22-202-005 (approx. 0.02 acres)
F-34	219 N Johnston Ave - Parcel # 11-21-209-005 (approx. 0.16 acres)

F-35	617 Greenview Ave - Parcel # 11-16-377-001 (approx. 0.14 acres)
F-36	1535 Andrews St (neighborhood park) - Parcel # 11-22-102-023 (approx. 0.09 acres)
F-37	8xx & 824 Lee St - Parcel # 11-22-205-004, 003 (approx. 0.016 acres)
F-38	1027 Woodlawn Ave - Parcel # 11-14-352-007 (approx. 0.11 acres)
F-39	729 & 733 N Rockton Ave - Parcel # 11-23-103-002, 001 (approx. 0.09 acres)
F-40	713 Locust St - Parcel # 11-22-234-012 (approx. 0.07 acres)
F-41	903 Acorn St - Parcel # 11-22-229-022 (approx. 0.05 acres)
F-42	309 Horsman St - Parcel # 11-22-280-004 (approx. 0.24 acres)
F-43	W. STATE & CHESTNUT CROSSOVER – SWX & Triangle Island [approx. .6 acres]
F-44	W. State & Kilburn Ave – NEX, City Lot [approx. .6 acres]
F-45	HORSMAN ST. – Along Old Quarry & City Lots South of Quarry. [approx. .5 acres]
F-46	WHITMAN ST -Horsman St. to N. Rockton Av. (south side of road) [approx 1.2 acres]
F-47	W. JEFFERSON ST/MULBERRY ST. - Kilburn Av. (south side of road) [approx .26 acres]
F-48	OGDEN ST. – City Lot @ Mulberry St. & W. Jefferson between Ogden St. & RR Tracks. [approx. .4 acres]
F-49	CITY LOTS – West side of Kent Creek from Mulberry St. to South of Elm St.. [approx. 2.4 acres]
F-50	Island at FISHER AV. & HASKELL AV. [approx .09 acres]
F-51	ROCKTON & CHERRY – East Side from street to south end of parking area. [approx .09 acres]
F-52	Triangle Lot at PRESTON ST, at Howard Av, and Anderson St. [approx .06 acres]
F-53	S. PIERPONT & PRESTON ST. – NWX, City Lot [approx .4 acres]
F-54	N. PIERPONT AV. -W. State St. to School St. (west side of road). [approx .6 acres] Mow back to edge of farm field or tree line
F-55	SCHOOL ST. -N. Pierpont Av. to Springfield Av. (both sides of road) [approx 1.2 acres] Mow back to edge of farm field or tree line
F-56	W. STATE ST. -Daisyfield Rd. to Springfield Ave (south side of rd.) Between W. State & Service Rd. [approx 1 acre]
F-57	W. STATE ST. – From Fire Station # 6 west to Springfield Ave (north side of road) Mow back to edge of farm field or tree line. [approx 1.2 acres]
F-58	1326 Chestnut St - Parcel # 11-22-326-004 (approx. 0.18 acres)

Block G – Mow Every 2 Weeks	
Site #	Location
G-1	CURVE ST. -S. Avon St. to Corbin St. (Road north - both sides of RR tracks plus vacant lot on SW corner of Selden and Avon St) [<i>approx 1.3 acres</i>]
G-2	523 CENTRAL AVE – Chip lot & Hill, both sides of fence and weed whip along guardrail. Mow south to southernmost RR Tracks. [<i>approx 3.8 acres</i>]
G-3	PIERPONT & LEXINGTON – Drainage Area, East and West side of Pierpont St. [<i>approx .5 acres</i>]
G-4	E. SIDE OF HORACE AVE. @ HUDSON ST. – City Lot [<i>approx. 6.4 acres</i>]
G-5	TAY ST. -Cedar St. to Curve St. (both sides of road, and along RR Tracks) [<i>approx .1 acres</i>]
G-6	CENTRAL AV. -Cunningham St. to City Yards Entrance (2 triangle lots, one on each side of the road and ROW on both sides) [<i>approx 1.9 acres</i>]
G-7	CUNNINGHAM ST. -1521 Cunningham St to Morgan St. (north side of road) and;
G-8	MORGAN ST. – Cunningham St to Central Ave. (south side of road) [<i>approx 1.6 acres</i>]
G-9	MARYLAND & HUDSON – City Right of Way [<i>approx .9 acres</i>]
G-10	1026 S. MAIN – City lot [<i>approx. .1 acres</i>]
G-11	700/800 S Main – Old Train Depot (See Map) [<i>approx.4.75 acres</i>]
G-12	1101 S. Church St. – [<i>approx .12 acres</i>]
G-13	525 S Main St (actually two lots) - Parcel # 11-22-489-002 & 11-22-489-001 (approx. 0.75 acres)
G-14	609 S Main St - Parcel # 11-27-226-010 (approx. 1.08 acres)
G-15	616 Newport Ave - Parcel # 11-20-454-006 (approx. 0.11 acres)
G-16	636 Hartford Ave - Parcel # 11-20-477-013 (approx. 0.13 acres)
G-17	4xx Short Horsman St - Parcel # 11-22-405-018 (approx. 0.31 acres)
G-18	201 Kent St - Parcel # 11-27-282-002 (approx. 0.31 acres)

Block H – Mow Every 2 Weeks	
Site #	Location
H-1	206, 210, 214 Lane St - Parcel # 11-27-429-008, 007, 006 (approx. 0.38 acres)
H-2	430 Knowlton St - Parcel # 11-27-405-001 (approx. 0.20 acres)
H-3	325 Salter Ave - Parcel # 11-27-405-020 (approx. 0.17 acres)
H-4	ARAGONA & REGINA – City Right of Way between Dead Ends. [approx .2 acres]
H-5	MONTAGUE RD. -Pierpont Av. to Montague St. – intermittent as indicated. Mow to edge of farm field, pole line or tree line. [approx 1 acres]
H-6	S. MAIN ST. & MARCHESANO DR. (northeast corner lot) Street east to tree line, fence north to bookstore. [approx .2 acres] Southeast corner south to House. [approx. .1 acres]
H-7	FORSYTHIA DR. – Drainage area from fence on east end of property to tree line on west side of Forsythia. Includes waterway. [approx. 1.7 acres] (Must string trim anywhere mowers can't be used)
H-8	SAUK DR. – City Right of way, North and South sides, wherever property is undeveloped. [approx. .7 acres]
H-9	SIMPSON RD. – Right of Way adjacent to cul-de-sac near S. Main St. [approx. .2 acres]
H-10	PRAIRIE RD. & S. MAIN ST. – Right of Way along S. Main and Prairie Rd. and open lot on NW corner [approx. 3.2 acres]
H-11	S MAIN ST & HARRISON AVE., North and south side of Harrison -S. Main St. to the River, Mow from street curb in, using utility poles, fence, bush & tree lines to determine right of way boundary width. Trim along all guardrails. Wrap both corners of Harrison & S. Main about 100 yards on Main St for visibility. [approx 1.5 acres]

Block I – Mow Every 2 Weeks	
Site #	Location
I-1	MILFORD AV -11th St to 9th St. (north side of road) (Must trim around guardrail) [<i>approx .6 acres</i>]
I-2	NEW MILFORD SCHOOL RD -1968 New Milford School Rd to Falcon Rd. (north side of road) [<i>approx .6 acres</i>]
I-3	LINDEN RD -S. Alpine Rd. to 35th St. (north side of road) [<i>approx .3 acres</i>] (south side of road) [<i>approx .2 acres</i>]
I-4	35TH ST -Linden Rd. to Bonanza Way (east side of road) [<i>approx 1.1 acres</i>] (west side of road) [<i>approx .7 acres</i>]
I-5	SAMUELSON RD -S. Alpine Rd. to 11th St. (south side of road) [<i>approx 3.6 acres</i>] (north side of road) [<i>approx 3.6 acres</i>]
I-6	SAMUELSON RD -11th St. to Falcon Rd. (north side of road) [<i>approx .1 acres</i>] (south side of road) [<i>approx .1 acres</i>]
I-7	EASY ST. – Boulevard between Easy St. & 6 th St. [<i>approx. 1.5 acres</i>]
I-8	AIRPORT DR. & S. 6TH ST. – City Lot between 39 th Ave & Airport Dr. from S. 6 th St. to S. 9 th St. [<i>approx.3.6 acres</i>]
I-9	RESEARCH PKWY. – City Right of Way in front of Retention Pond. [<i>approx. .4 acres</i>]
I-10	20TH ST. RIGHT OF WAY – Bypass 20 to Samuelson Rd. (both sides of road, where residents don't mow) [<i>approx. .6 acres</i>]

Block J – Mow Every 2 Weeks	
Site #	Location
J-1	HARRISON AV. -From the River to Kishwaukee St. Mow from street curb in using utility poles, fence, bush & tree lines to determine right of way boundary width. Trim along all guardrails Cut back to fenceline on the NE corner of Harrison and Seminary. (south side of road) [<i>approx 2 acres</i>] (north side of road) [<i>approx 2 acres</i>]
J-2	SEMINARY ST. -Harrison Ave to Blackhawk Park Ave. Also mow triangle lots at Seminary & Magnolia. (west side of road) [<i>approx 1.0 acres</i>] (east side of road) [<i>approx 1.0 acres</i>]
J-3	SANER RD. – Along RR Tracks between Kishwaukee St. & S. 4 th St. [<i>approx.1.6 acres</i>]
J-4	REED AVE. & HORTON ST. – Large City Lot on South side of Reed Ave. [<i>approx. 3.8 acres</i>]
J-5	HARRISON AVE. -11th St. to Alpine Rd. Trim along all guardrails. Mow from street curb to drainage ditch. Wrap NW corner of Harrison & 20th for visibility. Mow back to private fenceline on south side, west of Ohio Pkwy. Include landscaped terrace in front of Duplex' in 3600 block. (south side of road) [<i>approx 2 acres</i>] (north side of road) [<i>approx 2.2 acres</i>]
J-6	25th ST. DEAD END - See map, Vacant Lots and ROW, String trim around guardrail. [<i>approx .25 acres</i>]
J-7	1604 6th St - Parcel # 11-35-229-001 (approx. 0.11 acres)
J-8	2614 10TH St - Parcel # 15-01-103-017 (approx. 0.15 acres)
J-9	S. ALPINE & GRINNELL – SWX, Right of Way. [<i>approx. .1 acres</i>]
J-10	S. ALPINE & O'CONNELL – SW Quadrant behind homes SEE MAP (Utility Easement). [<i>approx. 3 acres</i>]
J-11	MANCHESTER DR. -Harrison Av. to Middlebury Ave. Steep slope must be string trimmed if unable to mow. (westside of road) [<i>approx 1.2 acres</i>]
J-12	18th ST SOUTH OF BROADWAY – West side of street along RR Tracks. [<i>approx. .3 acres</i>]
J-13	22ND AVE BOULEVARD – Between Kishwaukee St. & 7 th St. [<i>approx .7 acres</i>]
J-14	Island at APPLE ORCHARD LA. [<i>approx .08 acres</i>]
J-15	S. ALPINE RD. -Longmeadow La. to Apple Orchard La. (eastside of road) [<i>approx .3 acres</i>]

Block K – Mow Every 2 Weeks	
Site #	Location
K-1	S. ALPINE RD. -Larson Ave. to E. State. St. String trim along both sides of guardrail (west side of road) [<i>approx 1 acre</i>]
K-2	BROADWAY/WOODRUFF VIADUCT (See Map, ROW and about two passes behind sidewalks on both sides of Broadway) [<i>approx .1 acres</i>]
K-3	WOODRUFF AVE. -Broadway to 9th Street. Mow from pavement edge to railroad tracks or tree line. Steep slope must be string trimmed if unable to mow. (south side of road) [<i>approx 2 acres</i>]
K-4	100 Blk even side of Fairview Ave on southside of creek - mow from Fairview back east to tree line, from creek south to parking lot
K-5	100 Blk odd side of Fairview Ave on northside of creek - Weed whip/ mow from Fairview west for about 200' on both sides of guardrail and down into creek about 8'
K-6	NW corner of S 6th St and 11th Ave - SEE MAP, actually two triangle city lots
K-7	Oak Grove – City Lot [<i>approx 1 acre</i>]
K-8	7th Avenue & 5th Street – SW Corner Trim both sides of guardrail all the way west to first driveway [<i>approx .25 acres</i>]
K-9	712 4th Ave (L shaped lot) - Parcel # 11-26-251-009 (approx. 0.14 acres)
K-10	521 College Ave - Parcel # 11-26-179-005 (approx. 0.28 acres)
K-11	724 7th Ave - Parcel # 11-26-401-003 (approx. 0.07 acres)
K-12	715 7th Ave - Parcel # 11-26-404-006 (approx. 0.14 acres)
K-13	702 S 3rd St - Parcel # 11-26-108-001 (approx. 0.14 acres)
K-14	312 Penfield Pl - Parcel # 11-26-159-016 (approx. 0.17 acres)
K-15	325 Penfield Pl - Parcel # 11-26-160-006 (approx. 0.17 acres)
K-16	819 Seminary St - (approx. 0.15 acres)
K-17	Windpoint Deadend - 600/ 700 blk of Parkside Dr, large vacant lot
K-18	Island at GROVE ST. & KISHWAUKEE ST. [<i>approx .02 acres</i>]
K-19	Oak Grove at Glendale – City ROW [<i>approx .1 acres</i>]
K-20	326 Bremer St. – [<i>approx .11 acres</i>]
K-21	805 S. 5th St. – this needs to be mowed all the way south to the alley [<i>approx .34 acres</i>]
K-22	5TH AV. between KISHWAUKEE ST TO 4TH ST (south side of street) [<i>approx .1 acres</i>]
K-23	5TH AV. : RR crossing-Kishwaukee-4th St (north side of street) including slopes of overpass [<i>approx .03 acres</i>]
K-24	SW Triangle Lot: 5th Av -5th St-RR tracks [<i>approx .1 acres</i>]
K-25	NE Triangle Lot: 5 th Av -4th St-RR tracks [<i>approx .1 acres</i>]
K-26	Island on CENTER TERR. between Point Av. and Coco Joes, (south side of the road) [<i>approx .1 acres</i>]
K-27	N. ALPINE RD -Maray Dr. to north side of creek. (westside of road) [<i>approx .07 acres</i>]
K-28	N. ALPINE RD -from Seventh Day Adventist Church to Aldeen Park property line (eastside of road) [<i>approx .14 acres</i>]
K-29	426 N. 3rd St. – City Lot, L shaped lot [<i>approx .2 acres</i>]
K-30	Island at REVELL AV. & 9TH ST. (north east side) [<i>approx .09 acres</i>]

K-31	Island between HALL ST. & 6TH ST. & JEFFERSON ST. (north east corner) [<i>approx .1 acres</i>]
K-32	Island at JEFFERSON ST. & 6TH ST. & 5TH ST. (south west corner -by Uncle Nick's) [<i>approx .09 acres</i>]
K-33	11TH ST & CHARLES ST. – SE corner right of way by Marie's Pizza. Includes lot next to house on 11 th St. side. [<i>approx .1 acres</i>]
K-34	1006 Kishwaukee St. – [<i>approx .17 acres</i>]
K-35	1310 Kishwaukee St. & ROW across Lorden Ct along concrete wall – [<i>approx .30 acres</i>]
K-36	808 & 812 10th Ave – [<i>approx .34 acres</i>]
K-37	7xx Kishwaukee Ct. – (3 lots combined) [<i>approx. 1.4 acres</i>]
K-38	735 8th Ave – [<i>approx .24 acres</i>]
K-39	807 8th Ave – [<i>approx .06 acres</i>]
K-40	802 – 804 S. 5th St. – [<i>approx .53 acres</i>]
K-41	8xx S. 6th St. – [<i>approx .48 acres</i>]
K-42	Island on SKYLARK DRIVE between Crosby St and Fairview Blvd. [<i>approx .1 acres</i>]

Block L – Mow Every 2 Weeks	
Site #	Location
L-1	City Lot – Between Highcrest Rd. & Parkview Dr. – South side of Springcreek Rd., and:
L-2	City Right of Way – North side of Springcreek Rd. from Stoneridge east to end of wooded area. [<i>approx. 1.25 acres</i>]
L-3	Island at end of ALPINE CT. [<i>approx .46 acres</i>]
L-4	Island at GREENWOOD AV. & SKYLARK DR. [<i>approx .4 acres</i>]
L-5	Island at 2000 BIRCHWOOD DR. (south side of street) [<i>approx .02 acres</i>]
L-6	EDGEWOOD DR. – Along Golf Course from Forest Hills Rd. East to where Edgewood turns South (mostly string trim). [<i>approx. .3 acres</i>]
L-7	N. ALPINE & BROOKVIEW RD. – NWX on Alpine. [<i>approx. .2 acres</i>]
L-8	N. ALPINE RD - Olde Lyme Dr. to Innsbruck Dr. (eastside of road) [<i>approx 1.9 acres</i>]

Block M – Mow Every 2 Weeks	
Site #	Location
M-1	SPRING CREEK RD -Shaw Woods Dr. to Dior Dr. (south side of road) [<i>approx .4 acres</i>]
M-2	SHAW WOODS DR -Spring Creek Rd. to Spring Brook Rd. (west side of road) [<i>approx .9 acres</i>]
M-3	SPRING BROOK RD –Woodhill to Mulford Rd. (south side of road, includes drainage area west of Applewood Ln <u><i>THIS MUST BE WEED WHIPPED</i></u>) [<i>approx .8 acres</i>] SPRING BROOK RD -Spring Lake Dr to Mulford Rd. (north side of road) [<i>approx .2 acres</i>] NWX(mow 100' North), SWX, SEX (Mow 100' South), of Spring Brook & Mulford (right of ways only – includes string trimming around all guard rails).
M-4	REID FARM & TRAINER RD. – City Right of way (see map). [<i>approx .2 acres</i>]
M-5	REID FARM RD -Olde Creek Rd to Barrick Dr. (eastside of road) [<i>approx .55 acres</i>]
M-6	OLDE CREEK RD (<i>old Spring Creek Rd</i>) -Perryville Rd. to Reid Farm Rd. (south side of road) [<i>approx .73 acres</i>]
M-7	BELL SCHOOL RD. - Spring Creek Rd. to Spring Brook Rd, both sides of street except where landscaped. [<i>approx 1 acre</i>]
M-8	ROTH RD. – Old Creek Rd. North to Dead End, both sides. East side only mow ½. Remainder is County Highway property. [<i>approx. 2 acres</i>]
M-9	Springwheat Dr - Large vacant lot [<i>approx. 12 acres</i>] - mow from roads edge north to approx creek line. Starting at the property line of 3688 Springwheat mow east to tree line just before Bell School Rd. Also at north east corner there is a small area that needs to be mowed all the way to the edge of Bell School.

Block N – Mow Every 2 Weeks	
Site #	Location
N-1	49xx Guilford Rd - ONLY mow from edge of road to tree line
N-2	EASTLAWN DR. , South of CREEKVIEW RD. Weed whip along guardrail and south end of creek wall. [<i>approx .46 acres</i>]
N-3	NEWBURG RD. & S. MULFORD RD. – City Lot, NWX. [<i>approx. .3 acres</i>]
N-4	NEW TOWNE & JAVELIN – NWX, Drainage area. [<i>approx. 1 acres</i>]
N-5	ROTE RD. – Lyford Rd. to Bell School Rd., both sides & trim along guardrails. [<i>approx. 1 acre</i>]
N-6	LYFORD RD. – Rote Rd. to E. State St. Right of Way. [<i>approx. 1.8 acres</i>]
N-7	LYFORD RD. – City Lot (see map) [<i>approx. 10.2 acres</i>]
N-8	N. MULFORD RD -680 N. Mulford Rd. to Garrett La. (west side of road) [<i>approx .1 acres</i>]

Block O – Mow Every 2 Weeks	
Site #	Location
O-1	MULFORD RD. -Harrison Ave. to Charles St. (east side of road) [<i>approx .4 acres</i>] (west side of road) [<i>approx .5 acres</i>]
O-2	SANDY HOLLOW RD - Mulford Rd to S Alpine Rd (northside of road) [<i>approx 2.7 acres</i>] (south side of road) [<i>approx 2.3 acres</i>]
O-3	SANDY HOLLOW RD -11th St. to S. Alpine Rd. (north side of road) [<i>approx .6 acres</i>] (south side of road) [<i>approx 1.1 acres</i>]
O-4	SANDY HOLLOW RD -Kishwaukee St. to 11th St. (north side of road) [<i>approx .6 acres</i>] (south side of road) [<i>approx .2 acres</i>] (Must string trim anywhere mowers can't be used including all of ditches along here)

Properties & Complexes	
Site #	Location
PC-1	1200 Rock St. (Barber Coleman Complex)
PC-2	1200 & 1300 S. Main St (Barber Coleman out lots)
PC-3	301 S. Water St. (Ingersoll) * HILLS MUST BE WEED WHIPPED ONCE A MONTH *
PC-4	1419 Blaisdell (Church School)
PC-5	615 Furman St. (CD Lot)
PC-6	605 N Main St (Armory)
PC-7	302 S. Main St (Brown Lot)
PC-8	523 S Central Ave (City Yards) SEE MAP